INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI

A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor MI 48106-1346 USA
313/761-4700 800/521-0600

UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

EVOLUTION OF THE RURAL LANDSCAPE OF YSYK-KUL OBLAST, REPUBLIC OF KYRGYZSTAN

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

RICHARD W. BENFIELD

Norman, Oklahoma

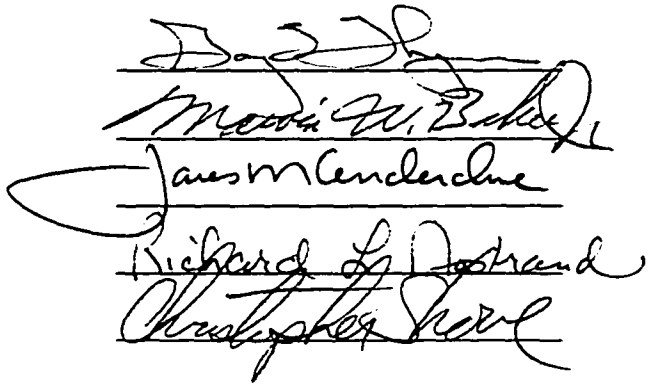
1998

EVOLUTION OF THE RURAL LANDSCAPE OF YSYK-KUL OBLAST, REPUBLIC OF KYRGYZSTAN

A DISSERTATION

APPROVED FOR THE DEPARTMENT OF GEOGRAPHY

BY



ACKNOWLEDGEMENTS

In any undertaking in this region and of this magnitude one is indebted to a large number of people. The first has to be Professor Gary Thompson who not only encouraged me to come back to school after a very long period away from the academic life but who also was constantly there for help advice and encouragement and in the ultimate sacrifice agreed to supervise the dissertation. To him is owed all the praise and none of the blame.

In the three years I spent in Kyrgyzstan I received a great deal of support and assistance. Foremost amongst these people are Camilla Sharshtekeva, President, and John Clark, Dean of the Kyrgyz-American University (KAF) in Bishkek. They allowed me to teach part-time at the school while I undertook research and supplied interpreters and all kinds of logistics help. Principle among the interpreters was Jyldyz, Eugenia, Aselia, Maria and Irene from the very first graduating class of KAF. Of the following class Mirgul and Djamilia were of particular assistance for it is with them I went most often to Ysyk-Kul and it was they who introduced me to the people of the region.

In Bishkek, Georg Bergman of Winrock and his wife Albina are now special friends as a result of all the time we spent together.

My special thanks go to the other committee members Dr.'s Richard Nostrand, Christopher Shove, James Kenderdine and Marvin Baker. Each contributed to my enjoyment of this work in different and significant ways.

Finally, it seems totally inadequate to express here just how grateful I am to my wife Sally and my children Elizabeth and David for the understanding support and sacrifices they have made over the last five years. For Elizabeth and David, upon submission of this document I can honor my promise to "not go to the office but to come and play." Unfortunately, one day in the not too distant future, they will not demand I come and play. However, in the future they will still retain some link to this time, for this dissertation is dedicated with all my love to them and Sally.

TABLE OF CONTENTS

Acknowledgements

Table of Contents

List of Tables

List of Figures

List of Maps

List of Plates and Images

Abstract

Chapter **Page**

1. Historical Sketch and purpose 1

The challenge for geography
Purpose

2. The research: methodology and data sources.... 15

Background: privatization, decollectivisation and Kyrgyzstan
Research premise
Choice of research area and scale of analysis
Methodology, geographic processes and scientific approach.
Data availability and collection
Research progression
Organization
Existing literature

3. The Regional Geography of Ysyk-Kul Oblast....34

Physical geography
Human geography

4. Historical Geography of Ysyk-Kul up to 1864 55

The Prehistoric Period 5,000 BC to 1000 AD.
The Manas epic circa 1000 AD
The Middle Ages 1227-1862
The traditional Kyrgyz way of life

Settlement types
The advent of the Russians

5. **The Russians 1862-1918 ..... 73**

The settlement process
Regional populations
The morphology and growth of early Russian Settlements
Vernacular architecture: house types
Land clearance and land use 1862-1924
Local history
Visual landscapes
Settlement toponyms

6. **The Soviet Years 1918-1991 ..... 98**

Lenin and the integration of Kyrgyzstan into the Soviet Union 1918-24
Stalin, collectivization and the changing settlement patterns 1924-1941
The Great Patriotic War 1941-45
The Kruschev Years 1953-1964
The Kosygin years 1964-1972
Stagnation under Brezhnev
Rural landscapes 1918-1990
Field systems and crops

7. **Land Tenure in an Independent Kyrgyzstan 133**

1991- 1997

Introduction
Land reform and tenure
Field divisions and systems 1991-1997
Village morphology and architecture

8. **Crop and livestock changes 1991-1997..... 155**

Cultivated area and Cropping practices
Livestock
Water resources and crop production
Farm inputs

9. **Farm Households 189**

Population structure of Kyrgyzstan

Farm employment
Farm incomes and productivity
Farm populations
Summary: rural settlement process, patterns and change

10. Geographical Change at a former Kolkhoz 222

-A View from the Farm level

Introduction
Historical evolution up to 1991
Agricultural change "Issykul" Kolkhoz, Telekmat,
Monduz and Ak Debe 1992-1996
Social and cultural change "Issyk-Kul" Kolkhoz

11. Conclusions and a future for Ysyk-Kul..... 240

Conclusions
The future

BIBLIOGRAPHY

APPENDIX A - Menu of methods for Rapid Rural Appraisal

APPENDIX B - List Of contacts

APPENDIX C - Glossary of terms

APPENDIX D - Russian language Statistical and Literary Sources

APPENDIX E - Official Kyrgyz Government Decrees and Resolutions pertaining to Land Reform, 1991-1997 and their impact on Governance and land allocation.

APPENDIX F - List of Equivalents

APPENDIX G - Annotated selection of Images and historic map reproductions.

LIST OF TABLES

TABLE	PAGE
3.1 CROP YIELDS IN YSYK-KUL OBLAST, KYRGYZSTAN IN COMPARISON TO U.S YIELDS	39
3.2 ETHNIC BREAKDOWN, YSYK-KUL OBLAST, KYRGYZSTAN 1989-1995	42
3.3 CHANGING ETHNIC MIX. YSYK-KUL OBLAST, KYRGYZSTAN 1989-1996	43
3.4 PERCENTAGE LAND AREA BY ALTITUDE	51
3.5 ETHNIC CONCENTRATIONS IN SELECTED CITIES, KYRGYZ REPUBLIC 1989	52
4.1 KYRGYZ TRIBAL STRUCTURE	65
4.2 MAJOR TRIBAL DIVISIONS, KYRGYZSTAN	65
4.3 TRIBAL AREAS, KYRGYZSTAN	66
5.1 TOTAL AREA, AREA UNDER IRRIGATION AND CULTIVATION, AND POPULATION OF TURKESTAN OBLASTS, 1911 AND 1913	77
5.2 SETTLEMENTS IN YSYK-KUL OBLAST 1870	81
5.3 REGIONAL POPULATION. PREZERVALSKI UZED, SEMERECHE OBLAST 1913	82
5.4 CONSTRUCTION MATERIALS, YSYK-KUL OBLAST 1913	88
5.5 CULTIVATED LAND IN YSYK-KUL REGION 1870	89
5.6 LIVESTOCK NUMBERS 1870-71	91
5.7 LAND-USE IN URBAN AREAS, YSYK-KUL OBLAST 1870	91
5.8 GRAIN CULTIVATION YSYK-KUL OBLAST BY AREA. 1913	92
5.9 A SELECTION OF TOPONYMS -YSYK-KUL OBLAST	93
6.1 WORKERS IN AGRICULTURE ON TYPES OF SOVIET FARMS 1950-1987	104
6.2 YSYK-KUL OBLAST URBAN-RURAL BREAKDOWN 1939	118
6.3 EMPLOYMENT BREAKDOWN, YSYK-KUL OBLAST 1939	118
6.4 ETHNIC DIVISIONS, YSYK-KUL OBLAST 1939	119

6.5 POPULATION OF MAJOR CENTERS, YSYK-KUL OBLAST 1959-996 119

6.6: ETHNIC CONCENTRATIONS IN SELECTED CITIES YSYK-KUL OBLAST 1989 120

6.7: RURAL-URBAN POPULATIONS, YSYK-KUL OBLAST 1951-1991 121

6.8. LIVESTOCK ISSYK-KUL OBLAST 1940-1988 121

6.9. AGRICULTURAL PRODUCTION, YSYK-KUL OBLAST 1965-1974 122

6.10 SOWN AREA YSYK-KUL OBLAST, 1965-1974(IN HECTARES) 122

6.11 PRODUCTION OF FOODSTUFFS, 1970-1988 BY OWNERSHIP 123

6.12 PERCENTAGE CONTRIBUTION TO PRODUCTION OF DIFFERENT LAND TENURE SYSTEMS KYRGYZSTAN 1965-1974 123

6.13 RURAL-URBAN BREAKDOWN KYRGYZSTAN, REPUBLIC AND OBLAST LEVEL, 1950-1991 131

7.1 LAND TENURE KYRGYZSTAN, 1985 AND 1990 134

7.2 PERCENTAGE OF ARABLE LAND HELD BY VARIOUS TYPES OF ENTERPRISES, 31 DECEMBER 1993 137

7.3 MEAN ARABLE LAND HOLDINGS (IN HECTARES) OF VARIOUS ENTERPRISE TYPES, 1 JANUARY 1994 138

7.4 PERCENT OF ARABLE LAND HELD BY VARIOUS TYPES OF ENTERPRISES, 1 JANUARY 1995 140

7.5 NUMBER AND TYPE OF AGRICULTURAL ENTERPRISES (NEW TOPOLOGY). 1 JANUARY 1995 141

7.6 LAND TENURE. YSYK-KUL OBLAST AND RAYON'S. JUNE 1996: STATE INVENTORY 142

7.7 LAND REFORM, YSYK-KUL OBLAST, JUNE 1996: OBLAST INVENTORY 143

7.8 LIVESTOCK OWNERSHIP, YSYK-KUL OBLAST, KYRGYZSTAN, 1991-1994. 148

7.9 OWNERSHIP AND DISTRIBUTION OF LAND RESOURCES IN THE KYRGYZ REPUBLIC, 1 JANUARY 1991. 151

7.10 MEAN ARABLE LANDHOLDINGS OF VARIOUS ENTERPRISE TYPES, KYRGYZSTAN, 1 JANUARY 1995 152

7.11 PERCENT OF ARABLE LAND HELD BY VARIOUS TYPES OF ENTERPRISES, KYRGYZSTAN 1 JANUARY 1995 152

7.12 DISTRIBUTION OF LAND RESOURCES IN THE KYRGYZ REPUBLIC, 1 JANUARY 1995 153

8.1: CHANGING LAND USE, REPUBLIC OF KYRGYZSTAN.1991-1996 157

8.2: LAND USE CHANGE. YSYK-KUL OBLAST, KYRGYZSTAN 1985-1996 158

8.3: LAND USE BY RAYON. YSYK-KUL OBLAST, KYRGYZSTAN 1996. 159

8.4 AGRICULTURAL YIELDS IN YSYK-KUL OBLAST, KYRGYZSTAN 1990-1996 160

8.5 CULTIVATION OF WHEAT IN YSYK-KUL OBLAST, KYRGYZSTAN 1992-1996 161

8.6 YSYK-KUL OBLAST: RAYON GRAIN AREA,PRODUCTION AND YIELD 1996 162

8.7 YSYK-KUL OBLAST:AREA PRODUCTION AND YIELD BY RAYON OF BARLEY AND OATS, 1996 162

8.8 SUGAR BEET PRODUCTION. YSYK-KUL OBLAST, KYRGYZSTAN 1996 165

8.9 FODDER CROPS-SILAGE AND ROOT CROPS-YSYK-KUL OBLAST 1996 166

8.10 FODDER PRODUCTION-HAY,GREEN FEED AND ANNUAL GRASSES. YSYK-KUL OBLAST 1996 166

8.11 VEGETABLE PRODUCTION YSYK-KUL OBLAST AND RAYON'S 1996 168

8.12 POTATO PRODUCTION YSYK-KUL OBLAST AND RAYONS, 1996 169

8.13 GARLIC, OTHER VEGETABLE, AND POTATO CULTIVATION, YSYK-KUL OBLAST, 1996 170

8.14 TREE AND BERRY CULTIVATION, YSYK-KUL OBLAST 1996 171

8.15 LIVESTOCK NUMBERS, YSYK-KUL OBLAST, 1990-1995. 172

8.16 GEOGRAPHICAL DISTRIBUTION OF LIVESTOCK, YSYK-KUL OBLAST, KYRGYZSTAN 1995. 172

8.17 STATUS OF IRRIGATED AGRICULTURE IN YSYK-KUL OBLAST 1993 178

8.18 IRRIGATED LAND AND PRIVATE FARMERS IN YSYK-KUL OBLAST 1996. 179

8.19 FARM MACHINERY. YSYK-KUL OBLAST JANUARY 1, 1997 183

8.20 Crop yields in the Kyrgyz Republic, 1990-1994 185

8.21 Grain acreage, Kyrgyzstan, 1990-1994 185

8.22 Kyrgyzstan sugar balance, 1993 and 1994 185

8.23 Area devoted to feed crops in Kyrgyzstan, 1990-1994 186

8.24 Horticulture and viticulture in Kyrgyzstan, 1990-93 186

8.25 Livestock numbers Kyrgyzstan 1990-1995 186

8.26 Arable land and irrigated crops (1993) 186

8.27 Status of irrigated agriculture, Kyrgyzstan by oblast. 1993 187

9.1 Rural-urban population, Ysyk-Kul Oblast, Kyrgyzstan, 1970-1996 193

9.2 Population densities 1996, Ysyk-Kul Oblast, Kyrgyzstan, by rayon 193

9.3 Employment Ysyk-Kul Oblast, July 1996 196

9.4 Average number of agricultural workers employed in various enterprise types, Kyrgyzstan, 1 January 1994. 196

9.5 Agricultural worker productivity, Kyrgyzstan 1965-1988 197

9.6 Size and value of private plots in Kyrgyzstan, 1961-1987. 198

9.7 Sown area per kolkhoz and sovkhoz worker in Kyrgyzstan 200

10.1 Population An-Usten, Telekmatovskoe and Monduz 1913. 223

10.2 Agricultural use An-Usten, Telekmatovskoe and Monduz 1913 224

10.3 Farm population and households. Former Issyk-Kul Kolkhoz 1992-96 225

10.4 Village of Telekmat, Djeti-Oguz Rayon, Ysyk-Kul Oblast, individual farm plots 1996 226

10.5 Village of Monduz, Djeti-Oguz Rayon, Ysyk-Kul Oblast, individual farm plots 1996 227

10.6 Rural health and sanitation facilities-Kyrgyzstan 1989 237

10.7 Facility provision, new houses, Kyrgyzstan 1986 238

LIST OF FIGURES

FIGURE		PAGE
4.1	KYRGYZ TRIBAL STRUCTURE	65
4.2	MAJOR TRIBAL DIVISIONS OF KYRGYZSTAN.	65
4.3	TRIBAL AREAS,KYRGYZSTAN .	66
5.1	GENERALIZED KYRGYZ HOUSE TYPE	86
5.2	GENERALIZED DUNGAN HOUSE TYPE	87
6.1	ETHNIC GROUP NUMBERS 1926 TEPLOCKLUCHENKA RAYON	108
6.2	ETHNIC GROUP NUMBERS 1926 TON RAYON	108
6.3	ETHNIC GROUP NUMBERS 1926 CAZANOVSKA RAYON	109
6.4	ETHNIC GROUP NUMBERS 1926 LRIZERNA RAYON	109
6.5	ETHNIC GROUP NUMBERS 1926 BARSKOON RAYON	110
6.6	ETHNIC GROUP NUMBERS 1926 CHOLPON ATINSKY RAYON	111
6.7	ETHNIC GROUP NUMBERS 1926 DJETI OGUZ RAYON	113
6.8	ETHNIC GROUP NUMBERS 1926 ISSYKUL RAYON	113
6.9	ETHNIC GROUP NUMBERS 1926 TURGENSKY RAYON	113
6.10	ETHNIC GROUP NUMBERS 1926 TIUP-KURMENTSKIY RAYON	114
6.11	AGE-SEX CHART KARAKOL CANTON 1926	114
6.12	AGE-SEX PYRAMID KYRGYZ YSYK-KUL 1926	115
6.13	AGE-SEX PYRAMID UKRAINIANS YSYK-KUL 1926	116
6.14	AGE-SEX PYRAMID UZBEKS YSYK-KUL 1926	117
6.15	AGE-SEX PYRAMID RUSSIANS YSYK-KUL 1926	117
8.1	SHEEP AND GOAT NUMBERS YSYK-KUL OBLAST 1980-1993	174
8.2	CATTLE NUMBERS YSYK-KUL OBLAST 1980-1994	175

8.3 HORSE NUMBERS YSYK-KUL OBLAST 1980-1993 176

8.4 FERTILIZER USAGE, YSYK-KUL OBLAST 1989-1995 180

9.1 AGE-SEX PYRAMID KYRGYZSTAN, 1989. 190

9.2 AGE-SEX PYRAMID YSYK-KUL OBLAST, KYRGYZSTAN, 1996. 191

9.3 SOCIAL COMPOSITION OF LABOR FORCE, YSYK-KUL OBLAST 1989 195

9.4 RURAL RESIDENTS, YSYK-KUL OBLAST, BY MEANS OF LIVELIHOOD, 1989. 195

9.5 DUAL INCOMES IN RURAL AREAS, YSYK-KUL OBLAST 1989. 199

9.6 MIGRATION IN YSYK-KUL OBLAST, LENGTH OF RESIDENCE IN CURRENT RURAL LOCATION, 1989. 201

9.7 MIGRATION IN YSYK-KUL OBLAST, LENGTH OF RESIDENCE IN CURRENT URBAN LOCATION, 1989. 201

9.8 POPULATION, AK SUU RAYON 1992,1994,1996. 203

9.9 POPULATION CHANGE DJETI-OGUZ RAYON 1992,1994,1996 204

9.10 POPULATION CHANGE, TON RAYON 1992,1994,1996. 206

9.11 POPULATION, VILLAGE SOVIETS TYUP RAYON 1992,1994,1996. 207

9.12 POPULATION, ISSYK-KUL RAYON 1992,1994,1996 209

9.13 POPULATION BY GENDER ISSYK-KUL RAYON, 1996 216

9.14 POPULATION BY GENDER 1992-1996 TON RAYON 217

9.15 POPULATION BY GENDER 1992-1996 DJETI-OGUZ RAYON 218

11.1 GENERALIZED MODEL OF LANDSCAPE EVOLUTION 245

LIST OF MAPS

MAP	PAGE
1.1 KYRGYZSTAN - LOCATION	12
4.1 ISSYK-KUL REGION- TRIBAL BOUNDARIES	67
5.1 YSYK-KUL OBLAST - SETTLEMENTS OF POSSIBLE UKRAINIAN ORIGIN	79
6.1 VOLOSTS IN KARAKOL CANTON 1926	107
9.1 POPULATION CHANGE-VILLAGE SOVIETS OF DJETI -OGUZ	210
RAYON 1992-96	211
9.2 POPULATION CHANGE-VILLAGE SOVIETS OF TON RAYON 1992-96	211
9.3 POPULATION CHANGE-VILLAGE SOVIETS OF TYUP RAYON 1992-96	212
9.4 POPULATION CHANGE-VILLAGE SOVIETS OF AK SUU RAYON 1992-96	213
9.5 POPULATION CHANGE-VILLAGE SOVIETS OF ISSYK-KUL RAYON 1992-96	214
9.6 CONSTITUENT RAYONS AND VILLAGE SOVIETS OF YSYK-KUL OBLAST, KYRGYZSTAN	215
10.1 FARM FRAGMENTATION AT THE FORMER ISSYK-KUL KOLKHOZ 1996	229
10.2 LAND ALLOCATION AT THE FORMER ISSYK-KUL KOLKHOZ 1996	231
10.3 ISSYK-KUL KOLKHOZ. SPRING-FALL PASTURE 1979	233
10.4 FIELD LAYOUT 1979, FORMER ISSYK-KUL KOLKHOZ	234
10.5 SUMMER GRAZING AREAS, ISSYK-KUL KOLKHOZ 1979	235
ARCHIVE MAP 1. LAND CLEARANCE CHALBA REGION, DJETI OGUZ 1868	296
ARCHIVE MAP 2. KARAKOL AND ENVIRONS 1886	298
ARCHIVE MAP 3. KARAKOL AND ENVIRONS 1910	300
ARCHIVE MAP 4. DACHAS FOR KARAKOL RESIDENTS ON THE SHORE OF ISSYK-KUL 1912	302
ARCHIVE MAP 5. TOWN PLAN TEPLOKLUCHENKA 1886	304

ARCHIVE MAP 6. THE AREA AROUND TEPLOKLUCHENKA 1884 306

ARCHIVE MAP 7. LAND CLEARANCE FOR AGRICULTURE TYUP 1895-1925 .....308 & 309

ARCHIVE MAP 8. REGIONAL SETTLEMENTS EASTERN YSYK-KUL DATE UNKNOWN 311

ARCHIVE MAP 9. POKROVKA TO MARINSKY 1910 313

ARCHIVE MAP 10. BOZ UCHUK 1899 315

MAP 11. MAHMUD AL-KASHGARI'S ELEVENTH CENTURY (?) MAP OF THE YSYK-KUL REGION 316

MAP 12. PORTION OF 1:100,000 YSYK-KUL SHEET 317

LIST OF PLATES AND IMAGES

PLATE PAGE

3.1 ETHNIC GERMANS LINING UP FOR EMIGRATION VISAS, CONSUL GENERAL OF GERMANY, ALMATY, KAZAKSTAN 1996 43

6.1 RUSSIAN ORTHODOX CHURCH, KARAKOL 1894 102

10.1 AERIAL PHOTOGRAPH, VILLAGE OF TELEKMAT 1992 228

APPENDIX G. 295

IMAGE 1. KYRGYZ HOUSE BUILT CIRCA 1920 318

IMAGE 2. KYRGYZ HOUSE AND LOT, KARAKOL 1996 319

IMAGE 3. LARGE HOUSE, VILLAGE OF TELEKMAT, DJETI OGUZ RAYON 1996 320

IMAGE 4. RURAL VILLAGE LANDSCAPE, VILLAGE OF TELEKMAT 1997. 321

IMAGE 5. LAND CULTIVATION, VILLAGE OF TELEKMAT 1997. 322

IMAGE 6. RURAL LANDSCAPES, WEST OF JYLDYZ, AK SUU RAYON 1997. 323

IMAGE 7. LONG LOTS, WEST OF VILLAGE OF JYLDYZ, AK SUU RAYON 1997. 324

IMAGE 8. ADMINISTRATORS HOUSE, KARAKOL 1996. 325

ABSTRACT

In 1990 the Republic of Kyrgyzstan became an independent nation. Prior to 1990 it had experienced a long and varied political and cultural history, most recently as a republic of the Soviet Union, but prior to that as an important region along the Silk Road between Asia and the Mediterranean. In 1990, upon independence, it embarked upon a program of decollectivisation, privatization and transformation to a market economy. To date, academic research has focussed on the transformation in the context of differing economic systems and changes in political hegemony. In this study the effects of cultural traits and habits are posited as the major influences on geographical landscape change. To investigate whether this is so, the factors that influence the cultural development of Kyrgyzstan were examined for one oblast, Ysyk-Kul Oblast. These include historical development and organization, changing land use, demographic trends and characteristics, changing land tenure, and current and residual visual landscape elements. It is suggested that there were four major periods of cultural influence, each separated by a major cultural paradigm shift. These were traditional Kyrgyz culture, Russian settlement, Soviet hegemony and independent Kyrgyzstan.

It was found that in the current land use and resultant landscape there is evidence of a number of processes that can best be explained by cultural forces and factors acting in the landscape. Moreover there is evidence that as a result of the last period of decollectivisation, privatization and change to a market economy there is the reversion to earlier cultural traits. Most noticeably, as a result of this external stress, there is a trend toward historic livestock breeds, long lot systems of land tenure and cultivation, the choice of subsistence crops such as the potato, and farm organization along cultural (patriarchal) and tribal divisions.

This reversion is a cause for concern for the future as such a reversion is not oriented to either a national or international economic system.

CHAPTER 1: HISTORICAL SKETCH AND PURPOSE

"For lust of knowing what should not be known
we take the golden road to Samarkand."

James Elroy Flecker (1884-1915)
The Golden Road to Samarkand

At the turn of the century, Central Asia was viewed by the poets of the time as the key to the riches of the East, but behind the romantic and alluring image of Central Asia there were very serious and pragmatic geopolitical concerns and issues.[1] Britain's empire was at its height and India was the "Jewel in the Crown". To the British, Russia's incursions as far south as Iran and their increasing control of the southern deserts of Turkmenistan had demonstrated Russian imperialist and colonialist ambitions and their ultimate designs on British India. The land between these two great powers was still unclaimed as imperial territory and therefore open to the strongest and the boldest. Indeed, an 1842 British attempt by Lieutenants Connelly and Stoddart to reconnoiter the territory had ended in beheadings at the hands of the Emir of Bokhara (Waller 1993). Few were willing to risk this fate. It was a land of intrigue and uncertainty, and it was, as yet, an unclaimed prize for the great imperialist powers. In short, while it was one of the most strategically important regions in nineteenth-century geopolitics (Waller 1993), the area represented the last great unknown.

The irony of this situation, in which the most little-known region of Asia in the nineteenth century was also the most strategically important, was a result of the area's remoteness and adverse geography. Central Asia was at least two weeks march from Moscow and fifty-six days' march from the Indian frontier. Some 5,000 miles long and dominated by peaks over 20,000 feet, the Himalayas separated the region from the south and British India. The vast waterless tracts of the great Kara Kum and Kyzl Kum deserts cut it off to the Russians in the north and west. The area was also inaccessible from the east because of the Taklamakan desert of western China and the lofty peaks of the Tien Shan.

It was a remote, isolated, and forbidding region, but it had not always been so. As early as 1,500 B.C., when the Chinese had commenced trade with the civilizations of Egypt and Greece, the easily traversed and watered piedmont fringes of Central Asia had become the lifeline for the East-West trade routes. Settlements catering to the trade route had sprung up; empires were made, and individual and distinct cultures emerged and prospered in response to this trade. By the start of the first millenium, Central Asia was at the heart of the world's largest trading route, bringing silk and spices from China to the Mediterranean and bringing gold, glass, and silver from the Mediterranean to China. Central Asia was at the center of the fabled Silk Road. The passage of multinational traders and accumulated wealth as well as the formation of empires and the introduction of new products as part of this trade all helped to create a highly fertile environment for cultural development. The source of this fertility was the many diverse peoples whose influences had created, over the course of a thousand years, a complex, exotic, and multi-layered cultural landscape. From the east the Chinese brought the knowledge and precepts of Confucian culture to the region early in its evolution. Influences from Iran to the region's south brought linguistic development to the southern parts of the region while the spread of Islam in the years following 631 AD caused the widespread adoption of Islam as the area's predominant religion.

Ironically it was the barbarian invasions of the Mongols of Chingiz Khan at the start of the millenium from whence came the influence of the teachings of Nestorian Christianity. Mysteriously, testifying to the reach of Buddhism into Central Asia, statues of Buddha can also be found in isolated parts of Northern Kyrgyzstan. An almost constant process was the in-migration of turkic-speaking, nomadic tribal groups from Central Siberia and the Mongolian steppes, who brought with them a belief in spiritual influences and associated shamanistic practices that ran parallel to orthodox religious influences. These beliefs are still a part of Central Asian indigenous culture. In addition to the region's cultural legacies of language and religion, the arts grew and flourished in Central Asia. While the dark ages gripped Europe, the preservation

and development of learning were additional components of the vibrant cultural life of the Silk Road. Contrary to the popular belief that it was backward and nomadic, an exotic, multi-faceted society had evolved in this region over the space of 3,000 years.

Written references to this part of Asia date from the seventh century, and maps of this portion of Central Asia, reflecting its strategic position astride trade routes, date from the tenth century. Starting in the sixteenth century, the shift of geopolitical power along an axis from Northwest Europe and the Americas saw this region lose its former importance. Notwithstanding this shift, the northern Slavic peoples had seen the region as strategically and economically important since the sixteenth century and had gradually advanced on this region for ultimate control. Thus it was that by the nineteenth century Russia became involved in Central Asia. Ever sensitive to the lack of a secure southern boundary, the Czarist rulers in Moscow, had increasingly and inexorably moved into the region to obtain this security. By 1854 Russian troops controlled Vernoe (present-day Almaty) and by 1878 they had conquered most of Central Asia. Rather than acting in a remote, unobtrusive, paternalistic manner the Russian authorities embarked on a deliberate and dedicated program to colonize the new territories. The effect was to add yet another cultural layer to this complex landscape, and this process was further promoted by the imposition of a communist Socialist system of economic organization in 1918. Thus, by 1991 the region was a diverse, complex multicultural part of the Soviet Union.

In 1991 dramatic change occurred. The Soviet Union died at midnight on December 31, 1991[2], having survived for seventy-three years. [3] Its successor was a series of independent republics.[4] When the Soviet socialist system collapsed the individual republics that had been carved out of this cultural mix during Soviet times were forced to fend for themselves. The four autonomous republics of Central Asia -Uzbekistan, Turkmenistan, Kyrgyzstan and Tadjikistan - were part of the fifteen that were cut adrift. Compounding this dramatic division was the uncertainty in the initial years following independence about what form the change would take, or whether any transformation would in fact take place. In retrospect we can see that the movement

toward democracy and the market economy prevailed; it now seems that the progress of reform is inexorable and that the economic and political changes are of a permanent nature.

Despite this former romantic view of Central Asia, current realities differ. For much of its history Central Asia was characterized by a nomadic society under a colonial administration and what evolved was a region that lacks many of the trappings of modern living. For example, there are few central sewage systems, only rudimentary centralized running-water networks, and there is little outside trade and commerce. The modern developments that had occurred were greatly affected by the massive disruption caused by the unraveling of the communist system. In the rural areas, the residents are now forced to fend for themselves for their food supply. Families and individuals have migrated to the cities in search of work and a means of subsistence and cities now are characterized by beggars and abandoned children. Wages from the free-market system are plummeting and inflation has soared. It is more and more difficult to make a living and there is little prospect of improvement. The dramatic and difficult changes brought about by the collapse of the Soviet Union are difficult to characterize and describe. Some people have responded to the challenges with daring and innovation; some have retained their privileges, and some have suffered. During the course of the fieldwork, a wide spectrum of individuals whose fortunes had differed under privatization was interviewed. To best illustrate this variety, presented are the capsule histories of four residents of Kyrgyzstan:

> Bolotbek Asanbekov is 49 years of age. He owns 60 hectares of land north of the village of Bugachoo, some 15 kilometers west of Kotchkor, a town of 14,315 persons in Naryn oblast. He is actively petitioning the Jorgu Kenesh, the parliament in Bishkek, for more land but so far without success.
> He farms the land with his eight brothers, and in 1995 on revenues of 1,134,000 som ($87,230) he paid 104,226 som ($8,017) in taxes. In addition he received a farm credit from Mercy Corps, a US aid agency. Under the conditions of the loan he repaid the loan by donating to the local hospital:
>
> 3375 kg meat (The loan requirement called for 570 Kg)
> 450 kg butter (The loan had called for 195 kg)

850 kg flour (The loan had called for 950 kg)

Bolotbek's generosity stemmed from the abundance in the produce he had produced from the loan (and for which he had no market). He claims to have had altruistic motives for the excessive donation.

On the day of our visit he was selling onions for 2 soms each as delicacies for a local Muslim holiday. He had purchased the onions for 0.5 soms each the previous fall and had stored them in an unfinished apartment complex (in which he lived with his wife and extended family and which he was renovating) for the winter in anticipation of the demand in the spring.

With the aid of four tractors and one combine he grows wheat, barley and potatoes. He contracts out the combine during harvest time. In addition he owns 1,944 sheep, 21 yaks, 10 Bactrian camels, 86 cattle, 100 Angora goats and 59 horses. His animals are pastured on common pastures, as there are no private grazing leases. In the Kotchkor region only the irrigated arable land has been privatized. The flocks are grazed on the spring pastures during the day and at night are brought back to the farmstead and penned in because the loss of animals to wolves is very high if they are not confined at night. Every summer the family packs up their belongings on the camels, and they go to Jailoo, or summer pasture, with their flocks. The Jailoo they use is a day's ride to the west, and they stay there from May until September. Bolotbek complains that with all the new endeavors he is undertaking that he does not have enough time to go to Jailoo.

By his own admission Bolotbek was never a good communist. His father died when he was young. He brought up his eight brothers, and he had to work in many businesses to earn a living for his family. He was not allowed to farm, because he was not born on a Kolkhoz [6]. An engineer by training, he tried a number of endeavors before he got into farming in 1993 as a result of the president's 1991 decree creating private farms. As the *de facto* patriarch of the family, he sees the future of his family in farming as a business, but he feels success will only come with a marriage of modern farming practices and old Kyrgyz cultural traditions. Thus he is actively raising camels; their carrying capacity is over 400 kg and they yield 300 kg of meat when killed, require very little veterinary care and will graze year round on thistles and burs. The only problems are the 14-month gestation period, the limited breeding stock, as camels were not allowed during the communist regime; and the complicated mating procedure. In addition, he is actively raising the

formerly banned Kyrgyz black-tailed sheep, which provide high meat yields, as opposed to merino sheep, which were introduced by the communist authorities for wool production.

He speaks disparagingly of the former system as a monoculture in which everything was oriented to wool production. If the plans were not met, farmers were punished. Thus, claims of 198 lamb births per 200 sheep were commonplace and reduced farming to a business of plan orientation, not production. In contrast to his other livestock, he has reduced his Yak numbers from 120 to only 21; there is no demand from other Kyrgyz herders who would use Yaks in the high altitude pasture when using the Jailoo. In the area allotted for his summer pasture needs there used to be 10 families with their flocks. In 1995 there were only five other families in the pasture with his. He suspected that only three families would go to this part of Jailoo in 1996 and therefore he has little need to go to the higher elevations to feed his flocks as they once did. His next project is to buy a computer, as he understands that he needs one to assist him with his farm accounts.

Djmabei Abdraskerov is the head person of Sara Kumish Village, 7 km. east of the city of Balakchy in Ysyk-Kul Oblast. The family to which Djmabei belongs has always held a position of authority in the community. He is a member of the Sary Bagush tribe and the Saru Komush sub-clan. His father-in-law was a Khan and as a Shabdan (Khan) held the rank of Colonel in the Czar's army. His father-in-law was born 1837 and died in 1912. His father-in-law had 4 sons and three daughters. The youngest daughter was Djmabei's wife's grandmother. Djmabei was born in 1940 and he married his wife in 1957. By the time he was 35 he had 10 children-3 sons and 7 daughters.

He believes he had a complicated career. He started his career as a shepherd, then became a technician before he left to go to the agricultural Institute to become a vet. He became head of the local kolkhoz, which involved coordinating 6 villages, 11,000 people, 75,000 sheep, and 1,500 cattle. He reported to the first secretary of the Rayon in Cholpon Ata as well as the local Secretary of Rural Affairs. As chief administrator, he never failed to meet the requirements of his plan. This is because the central planners were highly cognizant of the carrying capacity or productivity of the land. Where people did not fill the plan they could be transferred and in turn the

kolkhoz and sovkhoz could contest the allocation they were given. Where the plan was not met or environmental degradation was occurring, it was not seen as the failure of the plan, rather it was the fault of the people, who were too lazy to meet the goal or who were too lazy and uncaring about the environment. In 1991 he saw the end of the communist system in a dream (these psychic powers he claims to have inherited from his mother) which had also been foretold by his mother. She had predicted the fall of the Soviet Union, as it was God's punishment for the communists abandoning the ways of Allah.

Following independence, the village formed an association, at the urging of the president's wife, to see themselves out of their difficulties. Specifically, the young men of the village were moving to the cities and the village population had fallen from 3,000 in 1990 to less than 2,500 today. The school had closed and many of the former houses and apartments were abandoned. As a solution he decided to support the women of the former kolkhoz because he saw that they do most of the work. Today his family owns 5.5 hectares and he also farms for 6 women and 10 other families. He has been made the Official Representative of the Governments Cooperative Credit Bureau and advisor to the village. Notwithstanding the reorganization, he is very concerned over the depopulation, the collapse of the social structure of the village, and the future of the community.

Sopubek Begaliev was born in Frunze[6] in 1929 and received his degree in economics in 1954 from Moscow State University. He rose quickly through the ranks of Gosplan Kyrgyzstan as chief of Department to become Head of Gosplan Kyrgyzstan, the central planning agency for the republic in 1967, a position he held up to 1990. Mr. Begaliev saw his major role as that of a problem solver. Kyrgyz Gosplan solved all major questions that were brought up from the rayon and oblast level to the state level. These questions or problems had to be solved before they were taken to Moscow for Gosplan Moscow's and the U.S.S.R Union of Ministers' approval. Begaliev is now chairman or speaker of the Kyrgyz Parliament, or Jorgu Kenesh, a post to which President Akayev appointed him and for which he is very grateful. Mr. Begaliev is now 67 years old, and he looks back on his career in Gosplan with much fondness. While he admits there were problems, nothing could have been done to change the system, as it was in effect too perfect. The

secret to this smoothly functioning system was that working from a large scale downward one can anticipate or know all the major problems.
The two major products of Gosplan Kyrgyzstan were the annual plans and the five-year plan. The annual plan was a 300-page document, with supporting back up and explanation, which was submitted to Moscow every fall. In his annual trip to Moscow Mr. Begaliev indicated that the perennial problem was that Moscow always asked for more productivity, but climate and terrain would not permit it. He was continually confronted with this problem, but he was assured that greater productivity could be attained because Moscow took these difficulties into account.

Work on the annual plan would start in April and continue into May and June. July and August would be spent refining the document prior to a September finish date. If there was a particular problem area or person, the responsible person would be invited to come to Frunze, the capital, and discuss the problem. In turn, Gosplan would send specialists out to the rural areas to help and set guidelines. Every year Begaliev made a point of touring the best and the worst operations. Usually the major problems on the farms were technical shortages of machines, money, or the plan goals were set too high. The best farms were the ones that received the best inputs. As the annual plan bore all the hallmarks of the existing approved five-year plan, writing the plan was relatively easy and it was ready for the next year in August and distributed in September. On January 1 all annual plans were actioned.
The work that his agency was doing was so important that his staff members were the highest paid in all the ministries. However, they relied heavily on the Ministry of Agriculture and the specialized research institutes. He quickly saw that greater computerization would have helped their work, and indeed, Gosplan got their first computer in 1967, but software was not widespread. Mr. Begaliev indicates that while he was a strong Communist, his goal in life was not political and that Gosplan was not only a planning agency, but also advanced the social life of the Soviet people. He has therefore viewed the decline in the rural sector with great concern and sympathy, but at the same time he is a strong supporter of President Akayev's free market reforms. His daughter is a student in Minnesota.

Amankelde Ibraev farms 50 hectares of land six miles north of the village of Tyup in Ysyk-Kul Oblast. He applied for land following the presidential decree of 1991 granting up to 15% of the land area of former kolkhozy and he was granted land on the extreme northern edge of the eastern lowlands. He is quick to point out that this is the worst land in the whole of Ysyk-Kul Oblast, particularly because it lacks an adequate water supply. Moreover his neighbors in the existing and surviving kolkhoz are uncooperative and actively antagonistic toward his efforts. In 1996 he had 10 hectares planted in wheat; 10 in grass; 10 in barley; 9 in apple, pear, and apricot orchards and 11 still forested. He also owns 10-15 beehives, 20 cows, 15 horses and 200 sheep. He employs 6 laborers, one of which is his brother whom he designates to drive, by horseback, the sheep to their summer pasture in June.

In 1994 Amankelde obtained 38,000 som ($3,000.00) from a farm credit agency and purchased farm equipment in the form of tractors and tilling machinery. He was forced to purchase this machinery, because his former kolkhoz would not let him use their machinery for his crops. He was planning to retire half this debt in fall 1996 and the rest in 1997. Using his current crops as collateral, he also has a short-term working-capital loan from Mercy Corps. This loan must be paid back in December 1996. The ownership of his machinery enables him to cultivate 5 hectares of land, leased from adjacent landowners, from which he takes 80% of the profits.

Amankelde is a 1978 graduate in economics of Kyrgyz State University. He began work on the Jivprom Kolkhoz in Tyup Rayon as a labor economist and was transferred to the Illeibayev State Farm to be chief economist and leader of the sovkhoz. However, throughout his career he always thought the system "crazy" because formalism was the prevailing operational mode to the extent that as chief economist he delineated the type of work to be performed, the age of the worker, and the gender of the worker. These duties were part of the "task orders" that, for example, proscribed how and when wool was to be produced and sold. Any variance from the plan was covered with lies and false statistical reports. For example if the plan called for 600 lambs and only 500 were produced, the kolkhoz told the planners that 100 had died at birth.

Now, five years after starting as a private farmer, Amankelde is struggling but surviving. A large snowfall in August 1996 was a severe

setback. It virtually wiped out his grain crop, but he still posted a profit on his farm operations for the year. At present his biggest problem is low farm prices. Consequently, he has dropped his sheep numbers by over 1/3 since 1991. He also believes that there is collusion on produce prices at the wholesale level and this is inhibiting his ability to profit and thrive. In this regard he believes a centralized market or marketing board would be of benefit.

In the future, he will voluntarily limit his livestock to 300 head because to support more he needs more grazing land. He currently grazes his flocks on the summer pasture of his former kolkhoz, and he is now the only one using it. He also plans to limit his production of fruits until he gains secure markets.

The Challenge for Geography

By any measure, the changes that have affected Kyrgyzstan are dramatic and profound. Lives have been disrupted and uncertainty and fear have replaced complacency and security. The challenge for geography is to investigate these changes in the context of Kyrgyz cultural traditions and to see their effect on the landscape of Kyrgyzstan.

Michael Bradshaw suggested as early as 1991 that there are now four areas, or challenges, the geographer must address to contribute to the body of knowledge about the new post-Soviet geography. (Bradshaw, 1991). The first challenge is the explanation of the process of geographical change. Clearly there has been devolution from a central command economy and geography to what Bradshaw calls the new "theoretically informed Regional Geography." There are new processes generated at the national, republic or regional level that are now effecting change to the geographical landscape. Paradoxically, this contrasts with the necessity of the economies to reorient to a new multinational or global economy. The second challenge for the geographer is the understanding of the "new revealed" geography of the former Soviet Union. Bradshaw suggests that an understanding of the true nature of Soviet decision-making and the opening of formerly closed areas present the most obvious starting point. The third challenge concerns the area's relationship with human geography as a whole. Geographers can contribute

new models and theories as part of new conceptual frameworks that explain the relationship between transition economies and regional change. Finally, there is the challenge to promote geography as part of what was once generally called Soviet Studies. Economists, political scientists, lawyers, and business have all embraced the change going on in the former Soviet Union; it is time geographers added their unique contribution to this area of research and policy development.

Unfortunately, it seems that the call put out by Bradshaw in 1991 has not been answered. In the five years since the breakup of the Soviet Union little has been written and there has been limited interest in regional research. In 1996 there were only 177 [7] geographers listed in the Soviet, Central, and East European Study Group of the Association of American Geographers (A.A.G.), and there has not been one article relating to the study area in the *Annals of the A.A.G.* since the breakup of the Soviet Union in 1991. For a geographical area so large to have had so small an impact on modern geographical inquiry is troublesome. This dissertation is, in part, a response to the challenges presented by Bradshaw. It will examine one small, relatively unknown former republic, Kyrgyzstan, (Map 1.1) and the process of regional change in the context of this area's multi-layered cultural history. More specifically the study focuses on one oblast formerly closed to western visitors, Ysyk-Kul,[8] and places the process of change in that region within the context of what appears to be a new post-Soviet human geography.

Purpose

This dissertation is a geographical study of the changing rural and agricultural geography of Ysyk-Kul oblast in the Republic of Kyrgyzstan. It seeks to identify the causes and effects of the dramatic changes that have occurred, and are still occurring, in Kyrgyzstan, with a view to explaining the overall processes that are at work during the transformation from a nomadic society, to a centralized socio-economic system, to a market economy. In the earliest years of independence there were few data from which to evaluate the patterns effected by these dramatic reforms. After five years of independence there is an emerging body of data that can be used to

Map 1.1


Location Map
Kyrgyzstan - Location
KAZAKSTAN
Almaty
Bishkek
Chuskaya
Talas
Djalalabad
Naryn
Issyk-Kul
Issyk-Kul'skaya
Ton
Jety-Oguz
Ak-Suu
Tashkent
UZBEKISTAN
Osh
CHINA
TAJIKISTAN
N
W
E
S
Major Roads
Rivers
Railroads
Capitals
Intn. Bndy.
0
75
Miles
approx.

chart reform, allowing the opportunity to examine their effects. In any summation of the state of rural land use change in the Republic of Kyrgyzstan it must immediately be said that the landscape is still very much a landscape in the making. The magnitude and recency of the change is such that all the results of the change will not be apparent for quite some time. Notwithstanding this, at the time of writing it is apparent that some changes are irreversible and some post-soviet patterns are beginning to become as permanent a fixture on the landscape as any features can be in the dynamic system that is rural land use change.

Simply stated, it is the aim of this dissertation to examine the effects of the multi-faceted cultural layers that make up one republic, and to evaluate their importance in the context of the rapidly changing economic and cultural fabric of the country. It is concluded that the major overriding pattern in the area is one of a reversion to past cultural habits and that this will be manifest in the landscape. This is because culture acts as a security blanket against the changes that confront societies, and Kyrgyz society is no different from others that have confronted dramatic change. The process of examining change in Kyrgyzstan will add to the study of change in the whole of the former Soviet Union and can serve as a base for subsequent policy discussions and decisions by such agencies as United States Agency for International Development, the World Bank and the Kyrgyz Government.

ENDNOTES

[1] Flecker had the credentials from which to appreciate the importance of Central Asia. He was attaché to the British Embassies in Beirut and Constantinople and a recognized expert on Asian affairs.

[2] On December 31,1991, the Soviet flag was lowered at the Kremlin and replaced by the Russian flag, reflecting an agreement between Yel'tsin and Gorbachev. *De facto* dissolution occurred in the preceding months as former republics declared their independence from the Soviet Union and culminated in the agreements of December 8, 1991, to form a Commonwealth of Independent States. In the agreements the parties agreed that the USSR was no longer " a subject of international law and a geopolitical reality." (RFE/RL research report Dec 20, 1991)

[3] The Soviet Union was declared in 1924. However increasingly effective control of Russia and the lands within the former Czarists borders by the Bolsheviks from 1918 onward created a *de facto* union some six years earlier.

[4] With a life of 73 years, the life span of the Soviet Union was a little under the life expectancy of seventy-five years for the average American but considerably longer than the current life expectancy of fifty-nine years for the average Russian man (World Bank 1994). Throughout its existence it had conditioned economic and political development for a large part of the world. Thus its demise and the magnitude of the economic and political transformation of the successor states was arguably the most influential event of the latter half of the twentieth century.

[5] For a glossary of the most common Russian agricultural terms see Appendix C.

[6] Frunze, the capital city of Kyrgyzstan in Soviet times and named after the Soviet liberator of Kyrgyzstan from the Bolsheviks, was renamed Bishkek (derived from the Kyrgyz term Pishpek or ladle) in 1992.

[7] Of the 177, thirty-three members of A.A.G listed Central Asia as their specialty.

[8] In this dissertation transliteration of place names from the Russian has been made in conformity with commonly accepted Latin substitutes. In the case of Ysyk-Kul, the oblast name has recently (circa 1994) been revised from Issyk-Kul. It is thus used in this dissertation. However, the large water body is repeatedly referred to in western literature as Lake Issyk-Kul. As a result the spelling Issyk-Kul is used for the lake, and for pre-1994 spellings that use "Issyk-Kul" such as Issyk-Kul Kolkhoz. This practice has the added benefit of removing possible confusion between place and administrative units. Also Russian and Kyrgyz spellings of general terms are rendered in masculine gender despite the fact that any number of suffixes may be appended to the root.

CHAPTER 2: THE RESEARCH:

METHODOLOGY AND DATA SOURCES

Background: Privatization, decollectivization and Kyrgyzstan

On August 31, 1991, the former Soviet Republic of Kyrgyzstan became a separate state. It became a republic of the former Soviet Union in 1936 but earlier, it had enjoyed a long history and economic significance owing to its strategic position astride historic trade routes and its agricultural resources. In 1918 Kyrgyzstan became part of the Bolshevik Revolution and agricultural enterprises were collectivized as part of a communal agricultural policy. For over sixty years during the Soviet period Kyrgyzstan played a small but significant role in the economic and strategic development of the Soviet Union.

Upon independence, while many economic ties to the other republics of the former Soviet Union remained, Kyrgyzstan embarked upon a change to a market economy. The major transformation took place with privatization of commerce, industry and agriculture. The privatization program began in 1992 with the commercial and industrial sectors and involved the auctioning of the small-scale industrial, retail and service establishments. By the end of 1993, most of such establishments had been sold. The next step was to include medium and large-scale enterprises. By 1996 almost all commercial and industrial enterprises had been privatized and were beginning to function within a market-oriented economy. Concurrent with this sale was the de-collectivization and privatization of the former state and collective farms (i.e. sovkhoz and kolkhoz). Reform of the agricultural sector began with the Law on Peasant Reform on November 10, 1991 that allowed for individual or family farms on unprofitable state or collective farms. Individual farmers and new farm

collectives became owners of the former state enterprise with the capacity for self-determination of organization and operational issues.

In February 1994 the second phase of break-up of the former kolkhoz and sovkhoz was enacted. A Presidential decree made the Ministry of Agriculture responsible for the transformation of the system of land tenure in the agricultural sector. Since that time, the pace of land tenure change has greatly accelerated and physical changes in the rural landscape become more apparent. It is upon change in the rural settlement and land-use sector, particularly agriculture that this dissertation will focus. In the space of only sixty years there have been three major geographical processes in the Republic of Kyrgyzstan: the transition from a purely nomadic existence to a sedentary lifestyle, the imposition of a centrally planned communal system, and most recently the transformation to a privatized, market economy.

Research Premise

The political, economic and cultural history of the Kyrgyz Republic has caused significant change in the structure and geographical patterns of rural agricultural activities. The aim of this research is to identify the nature and causes of change and to examine the effect of these changes in the physical and cultural landscape of the Kyrgyz Republic through a geographical analysis.

More specifically, while the external forces generating these changes were all somewhat abrupt, at the local level these processes represent a continuum. As a result, the responses to these changes were not arbitrary, but based on current economic realities and long-standing cultural histories, values and traits. These changes were assimilated into the culture and thus modified the cultural landscape. To date there has been no research in Kyrgyzstan on spatial changes that have occurred as a result of cultural characteristics and change, nor on the resultant manifestation on the landscape. The research will therefore trace and explain the processes that are at work during the

transformation from a nomadic culture, to a centralized economic system, to a market economy in one representative oblast. In particular cultural responses will be traced and their effects on the making of the oblast landscape will be described.

Choice of Research Area and the Scale of Analysis

The magnitude of change in the Republics of the former Soviet Union is such that not all aspects of the effects of privatization could be covered in a work of this nature; thus this research is confined to the rural, primarily agricultural sector in one former republic. Notwithstanding the small geographical area of Kyrgyzstan, the country encompasses a wide range of geographical terrain. It is therefore impossible to undertake a study of agriculture throughout the country. As a result a choice had to be made on a region to study within the country. Kyrgyzstan can be divided on the basis of six distinct physical regions, and indeed these divisions are so distinct they have formed the basis for the internal administrative divisions or oblasts in the country. Thus, the choice of a study area for rural land-use in the country may be conveniently made on the basis of geography and administrative divisions. A brief description of these distinctive regions, or oblasts, along with their relative merits and disadvantages as a study area follows:

1. Chui Oblast

Chui Oblast sits on the foothills and steppe and abuts the border with Kazakstan in the North. It is by far the most populous oblast with more than a third of the population of Kyrgyzstan residing in this oblast. It is the location of the capital, Bishkek. The fact that it is the wealthiest oblast owing to its proximity to the capital distorts cultural and agricultural patterns and therefore precludes its being chosen as the oblast under study.

2. Talas Oblast

Talas lies in the northwest portion of the country and is predominantly an agricultural area with crops of wheat, corn, tobacco, and vegetables. Sheep and cattle are raised in this area. It is a western extension of the steppes and foothills of Chui Oblast but separated from Chui Oblast by the Talas Ala Too mountain range and joined by two 9,000-foot passes. The geographical separation from the rest of Kyrgyzstan and an agricultural characteristic more like the steppes would suggest it is not typical.

3. Naryn Oblast

Naryn is almost entirely mountainous and borders China on its southern side. It is the major sheep herding area of Kyrgyzstan but some fodder crops are grown in the narrow but productive valleys. The remoteness and uniformity of its agricultural makeup precludes it being chosen as the study area.

4. Osh Oblast

Osh is the major oblast in the Fergana Valley and is the center for the republic's cotton, pomegranate, fig, and tobacco crops. Indeed, Osh produces more than 33% of the republic's vegetables. However, these crops require major irrigation, owing to high summer evapotranspiration. Cattle ranching and, to a lesser extent, sheep herding is also undertaken in Osh Oblast. The facts that the oblast is separated from the rest of Kyrgyzstan by a major mountain range, and that the climate of the Fergana valley is so different from the rest of Kyrgyzstan preclude it being the region of choice.

5. Jalal-Abad Oblast

The fifth oblast, Jalal-Abad, bordering Talas and Osh, is very much like Osh and the mountainous oblast of Naryn, inasmuch as raising livestock (cattle and sheep) and irrigated crops are the major agricultural land uses. It was not chosen as the study area for much the same reasons Osh and Naryn oblasts were rejected.

6. Ysyk-Kul Oblast

Ysyk-Kul is in the eastern part of the country and occupies almost one quarter of the land area of Kyrgyzstan. It contains Lake Ysyk-Kul, whose microclimate permits the growing of fruits and vegetables and also arable crops. The more mountainous areas support large populations of sheep and cattle. As an oblast, Ysyk-Kul combines many of the characteristics of other oblasts in Kyrgyzstan, and sustains a population of almost half a million people, making it the best choice and therefore the focus of this dissertation.

The resultant analysis is primarily at the oblast level because such a scale allows spatial trends and patterns to become most readily apparent. Moreover, it is the smallest scale at which significant amounts of data are available. However, in order to trace the linkages between what is happening at the farm level and the regional patterns and processes this study also examines inputs and cultural impress at the more local (rayon and farm) level.

Scientific approach, geographical processes and research methodology.

Scientific approach

According to Stratford (1994 quoting Pacione (1986:13)) there are two approaches to the study of agricultural geography. The first is an empirically based or inductive approach that describes what exists in the landscape and attempts to draw conclusions on the basis of that which is seen. The second approach is a normative or deductive approach that posits a hypothesis about what patterns should be like (the ideal) and then tests that hypothesis against what exists (the reality) to derive a model that provides explanation. Furthermore Pacione suggests that within these two approaches there is an environmental consideration that involves the integration of the physical environment, an economic consideration that requires analysis of the availability of markets, transportation and infrastructure, and a social-personal consideration that requires that farmers' aims, values,

motivations and attitudes be recognized. Aims, values, motivations and attitudes influence farmers patterns of behavior and thus affect geographical patterns.

A choice had to be made on which approach to use. The deductive approach to rural studies usually utilizes some form of questionnaire to obtain primary data that focuses on the hypothesis being tested. Such an approach in the former Soviet Union is problematic. In the development of primary data, Swafford (1992) indicates there are three major impediments to survey research. Firstly, there exists an uncertain legal and political environment within which data can be assembled, leading to problems of data relevance and sampling. In addition the supervision of researchers and the communication of results is highly problematic in this environment. Secondly, there is a lack of professional researchers, and thirdly, the cultural differences between the western researcher and the citizenry creates unique problems both in the development of survey research and in the interpretation of results. To these three objections the author would add that administration of surveys invariably creates suspicion and fear, and this in turn leads to suspect data.[1] Moreover with the requirement for tracing historical cultural change, a deductive approach frequently ignores the time dimension of geographical study in order to explain a static ideal pattern.

In the light of these issues, this dissertation utilizes the inductive approach and includes the environmental, economic and social considerations considered so important by Pacione.

Geographical processes.

Pacione suggests that through the course of land-use change there are several environmental, economic and social processes at work. Among these are:

1. In the process of rural land use change there is the constant requirement for assets and resources.
2. In the structure of any rural enterprise there are liabilities.

3. Demographic change, especially migration, is a very significant feature as labor is a major input. A reduction in the available agricultural labor force, as youth migrate to the cities is the common concern.
4. Sources of supply (inputs) and demand (markets), are changeable thus disrupting or altering agricultural supply networks, markets or processing facilities.
5. Distribution channels and markets change and become rationalized to ensure business viability.
6. Cultural factors modify and adapt to changing external events and actions thus leaving relic cultural traits following the imposition of new, external economic systems.
7. Physical processes such as drought or environmental degradation will change such features as production targets, based on the carrying capacity of the land.

The research involves examining the landscape to seek evidence of change and to thus test the validity and magnitude of the above processes. The result will be to add to the body of research on general agrarian change and in particular on agrarian change as a result of the imposition of a market economy.

Methodology and data collection

Research in the former Soviet Union is a formidable challenge. In the case of Kyrgyzstan the difficulty of obtaining good data, the type of data available and the inherently geographical nature of this type of inquiry make research very difficult. Preliminary research showed that in the case of Ysyk-Kul oblast data were available at the oblast level in official published statistics but at the rayon level were only available for consultation in unpublished loose sheet folios [2]. Any data that have any degree of sensitivity (Causes of death, sales, area under crop, aerial photographs) are not made available to persons without the highest level of security clearance. As a result at best official

statistics are spotty and incomplete.

There are no data available at the local level thus primary data is limited to what the researcher collects. As was noted above, most rural residents defer to persons in authority. Hence the reluctance of most potential respondents to submit to a formal interview. Input from a potentially biased, limited selection of the power elite (nomenclatura) is usually the result. As a result a technique needed to be developed that accumulated data from a wide cross-section of rural residents and that circumvented the difficulties inherent in research in this area. The technique that was thus employed makes considerable use of selective interviews and observations as the primary technique of data collection.

Interviews, observation and field mapping

The primary field technique used was to visit selected villages and sites of interest and survey the village for either a day or for up to a week, observing items of geographic interest and recording data by informal interviews with residents. Specifically, the visual elements from the cultural impress on this land that were included are:

- The morphology of settlements, including streets.
- Individual localities, particularly oddities, incongruities and vestigial items
- Factual details
- Field systems and divisions (traced by systematic walks) Transects to observe diversity and change as one encountered different microenvironments.
- Vernacular architecture (walls, building materials, earthworks and particularly irrigation systems)
- Church and mosque interiors
- Cemeteries and mausoleums

•Ghost towns

In addition, direct observation of farming practices and farmers with follow-up checking and confirmation by Ysyk-Kul Oblast data was undertaken when possible.

When information was sought from local residents, it was conducted with a local, English speaking (Kyrgyz) student who would initiate conversation in an informal fashion. Probes were used by asking key questions in semi-structured interviews. Topics addressed with each interviewee that were examined as possible major areas of change were:

•Farm populations, migration, employment, work pattern and labor markets, diet and diseases

•The process of agrarian reform and resultant attitudes in the context of decollectivisation, privatization and change in land tenure

•Land use changes including arable, pasture and tree use.

•Change in farm structure (herd sizes, prices, cropping practices, and acreage)

•Availability and source of farm inputs and location of outputs, markets and transportation networks.

A mental checklist of these items was used because a questionnaire was seen as too threatening. Where necessary, additional probing and follow up on the unexpected was also undertaken. In reality it soon became apparent that in the villages' key informants are the former kolkhoz managers, Aksakals[3] and Imam's who are also the authorities on topics, individuals or groups. Of necessity these individuals were major foci for information gathering. They were also the gatekeepers to other respondents, and thus often delivered other interviewees. When there were village committee meetings they were attended and discussions initiated with community groups, casual groups and

other structured groups such as individual households. A dedicated effort was made to contact individual farmers who may have held different viewpoints from the rest of the community at large. It was attempted, as much as time permitted, to develop a sequence of interviews to cover stages of a process (e.g. planting to harvest) and to follow up, at a later date, earlier interviews. A list of interviewees who agreed to be publicly identified is presented in appendix B.

The data were recorded in note form and, where possible, were sketched or represented in bar graphs, histograms, flow diagrams, Venn diagrams, decision trees or otherwise recorded in diagrams depicting spatial change (transects), temporal change (trend lines) and seasonal change.

Of particular concern to the topic under study was the examination of cultural attributes in the context of group dynamics, processes and social change. This involved the recording of ethnohistories and local and personal histories, recounted and recalled by rural residents, particularly by older Kyrgyz, were collected. This included stories, portraits of leaders, anecdotes and descriptions of people, households, ancient farming systems, social groups, village events, customs, and practices.

Finally, to obtain cross-fertilization of information in the major centers, significant use was made of agronomists, academics, consultants and social scientists working in Kyrgyzstan.

The ultimate goal was to find a cost and time-effective geographical technique to arrive at a conclusion or set of conclusions as to what was happening in Ysyk-Kul oblast.

The methodology has significant comparison to techniques originally developed by Hoskins (1955) and refined by Meinig (1979). In recent years such techniques have been used by aid agencies that work under similar constraints. Chambers (1992) has summarized this type of data collection method and these are presented in appendix A. In Kyrgyzstan, the relative recency of the effects of Czarist and Soviet policies (essentially all within the last 100 years) makes participant observation

and interviews significant options as research tools. In the case of Kyrgyzstan the type of inquiry makes the choice of this methodology and the associated techniques a wise and valid one.

However this approach is not without its drawbacks. With regard to primary data the technique is often accused of being too selective and superficial. With regard to secondary data sources, existing statistical data are considered flawed to the extent that they must always be considered suspect, particularly in the case of census data collected under the former Soviet regime in Kyrgyzstan now stored by the State Committee on Statistical data (formerly Goscomstat). At best, these data can be used to illustrate trends and the gross magnitude of particular phenomena, but should not be used as empirical veracity.

Data Availability and Collection

In lieu of or as support to this primary data collection technique, this dissertation makes considerable use of available secondary data sources. In the case of Kyrgyzstan these tend to be limited to official statistics, maps, aerial photographs, travel books, satellite imagery and studies by international aid agencies. As these sources are usually unfamiliar to western researchers, Russian language literary and statistical sources used are listed separately in appendix D. Following is a brief description of the secondary data sources used in the analysis.

Census Data

In the case of Kyrgyzstan there have been six major censuses [4] that provide the basis for historical data[5]:

1. The " All-general (Universal) Census of Population" of 1897.

2. The Census of 1926[6]

3. The Census of 1959.[7]

4. The Census of 1970.

5. The Census of 1979.

6. The Census of 1989.

There was also a limited census in 1994 in Kyrgyzstan. Concurrent with the official censuses, other government agencies, particularly local governments at the Oblast and rayon levels, conduct surveys. These statistics are aggregated on a yearly basis and issued as a Republic yearbook. These usually take the form of economic yearbooks with a variety of indices or purely demographic yearbooks. In Kyrgyzstan the latest are The Statistical Yearbook of the Kyrgyz Republic or *Statisticheskiy yezhegodnik Kyrgyzskoy Respubliki* in 1994 and The Demographic Yearbook of the Kyrgyz Republic or *Demograticheskiy yezhegodnik Kyrgyzskoy Respubliki* in 1995. The state statistical agency [8] also publishes a yearly volume dedicated to only economic performance statistics. These data are of most value in providing economic statistics on the past Soviet economy. These volumes, with varying amounts of information, are entitled *Narodnoe khozuiAaistvo Kirgizskovoi.* The first year statistics on Kyrgyzstan were made available, following the Stalin years, was 1960 and they are available in varying quality for a number of subsequent years up to 1988. Some comparison with pre-Revolutionary years (1913 or 1916) is occasionally given.

Other Agricultural Statistics

At the national and oblast level the Ministry of Agriculture has an extensive statistical inventory of crop and livestock counts; some data are available at the rayon level. These data are available for consultation[9]. However, at the farm level many of the data from the former kolkhoz and sovkhoz are still considered secret and ownership data relating to land tenure on the coming of privatization is also considered secret.

Aerial photographs

Kyrgyzstan was photographed approximately every two years from 1943 until 1993. However

unlimited access to these photographs is not possible owing to their proximity to China. Satellite imagery from the early 1970's is available.

Photographic archive

There exists in Kyrgyzstan a large photographic archive dating from 1910 and from which landscape and human activity patterns may be derived.

Historic maps

In the same archive there is a collection of town plans primarily for settlement establishment. There are also maps of land-use and land allocation that may be consulted.

Travel and trip reports

Finally the exploration of this region starting with Russians in 1860's, and continuing with Russians, British and Germans at the turn of the century has provided a large source of travel and trip reports on conditions in Central Asia at this time.

Consultant Reports

Prior to 1991, statistical data on the rural sector in Kyrgyzstan was limited to Goskomstat statistics collected as part of the five-year centralized planning process and usually disseminated with the census data. Since 1991, in the course of the privatization of the Kyrgyz economy, vast amounts of new data were collected, generated primarily by international aid agencies. The European Union's Technical Assistance to Commonwealth of Independent States (TACIS) program collected detailed data on the national and regional agricultural sector as well as individual sectors. The Winrock International "Farmer to Farmer" program collected data on thirty individual farms, the Rural Development Institute has undertaken a series of reports detailing land tenure and its changes since 1991. The World Bank has produced not only Kyrgyzstan country reports but also detailed analyses on key rural sectors. In total, these data include:

- Number of rural employees
- Size of farms
- Farm organizations
- Environmental impacts
- Farm products (crops and animals)
- Source of inputs (Fertilizer, tractors, and fuel)
- Existing markets for rural products including livestock grain/flour/bread, fruit and vegetables
- Financial statements
- Existing business systems within which the enterprise functions

Therefore, a generally credible source of data on the post-1991 agricultural base is readily available. Furthermore, it is known that these data are a representative cross-section of all agricultural types in Kyrgyzstan.

Research Progression

The research initially assembled and examined the existing data on the rural sector in January 1996. Additional baseline data in archives and statistical agencies were collected in April and May 1996. Interviews were conducted with scholars and specialists in the Kyrgyz Government, academia and in private enterprise between March and June 1996. Field surveys in Ysyk-Kul oblast were conducted in January 1996, May 1996 and March 1997.

Organization

This study requires the detailed examination of the historical antecedents to the current rural activity patterns in Kyrgyzstan. Newcomb (1966) suggests that there are twelve working approaches to the study of historical geography. Of the twelve he suggests the approach taken in this study is a

traditional approach he calls the "Dagwood Sandwich". It treats the evolution of the landscape chronologically (the vertical theme) yet intersperses this treatment with discussions of individual elements in one time period (the slice-in-time). The reasons for this treatment in this dissertation are two-fold. Firstly it permits the reader to understand the evolution of the landscape as a composite whole and secondly the destruction of much of the pre-Soviet landscape elements, the incomplete data base and the rapid change the oblast is undergoing makes the tracing of specific vestigial elements like field systems and cultural artifacts incomplete and non-continuous.

The historical evolution of rural Kyrgyzstan will be found in chapters four, five and six detailing the pre-historic period, the Russian colonization and the Soviet period respectively. Chapters seven to ten will provide an analysis and present findings of the changes since 1991. Chapter eleven will present overall conclusions and possible future research areas. As background information on a relatively unknown part of the world and as a description of the physical considerations suggested by Pacione, chapter three will describe the study area.

Existing Literature

The study of rural and particularly agricultural landscapes has a long tradition in geography. Stratford (1994) suggests that detailed studies of rural landscapes arose out of a reaction to environmental determinism in the early years of the twentieth century and focused on the study of smaller areas or systems to investigate physical, social and economic factors that explain the landscape. He cites Charles E. Colby's study of the Fresno raisin district, Trewartha's study of rural landscapes in Wisconsin and Preston E. James study of coconut groves in Trinidad. To that early list should be added Jan Broek's study of the Santa Clara Valley, for it is cited by Newcomb (1966) as the *ne plus ultra* of the approach taken here. Notwithstanding the long-standing tradition in this kind of regional approach to rural land use by U.S geographers, and much like studies in the former Soviet

Union in general, there has been limited interest in rural land use change in the former Soviet Union. Pacione suggests two reasons for this neglect. Firstly he suggests the imbalance in land ownership was not as great in centrally planned economies and thus elicited little interest in the effects of variety in land tenure. Secondly he says that " ...(There may be) the impression...that agrarian structures there have been rather stable since the period of rapid collectivization ended in the 1960's. However any such impression would be mistaken for not only have the patterns of tenure and farm structure continued to evolve but also the problems of food supply have called into question the whole system of agricultural management". In the year following Pacione's statement, the famous dissident Zhores Medvedev published a comprehensive work (1987) on the whole system of mismanagement of Soviet agriculture that set the scene for the subsequent dramatic changes that were to occur following 1990. Since that time, studies of agriculture have focussed on the progress of reform. Of those studies, Craumer (1994) indicates that most work has been conducted in Russia on the political, legal and structural aspects of agriculture at the aggregate level.[10] At the individual oblast level research has concentrated on peasant farm size and only presented a general discussion,[11] with only Brooks and Lerman (1994) working at the local farm level.[12] To date no one has linked processes occurring between the local level and the oblast, and the patterns that thus result. Furthermore none have suggested the evolutionary dimension of rural land-use patterns. Rather, researchers (Vogeler 1996) implicitly assume that change is unrelated to pre-existing structures and cultural traits.

Surprisingly, literature from other academic disciplines on the effect of external change on cultural traits is also limited. Anthropologists certainly recognize the effect of external forces. "...cultural change, externally induced yet indigenously orchestrated, has been going on for millennia." (Sahlins 1985 p.viii), but the resultant response to these external forces have been little explored and reported.

Finally, there is a scarcity of literature on geographic change in the little known Republic of Kyrgyzstan. Indeed a literature search of 1500 periodicals over the past six years contains the keyword "Kyrgyzstan" only 166 times! Of these the vast majority are from the popular press and few are of an academic nature. Therefore, the results will be a benchmark in the development of a theoretical base for not only the study of Kyrgyzstan but also the research may have applicability throughout the Central Asian Republics of the former Soviet Union. It may also serve as a general model for structural changes in rural settlement and land-use as a result of differing geographical processes.

ENDNOTES

[1] The pervasive nature of the communist system means that potential questionnaire respondents invariably defer to figures of higher authority. Thus any survey often is only representative of the village (soviet) elders or leaders. Those that do reply either inflate values, a habit from the earlier Soviet era when plans had to be exceeded or more commonly today values are understated to avert government regulation most usually in the form of taxation.

[2] The statistical department of Ysyk-Kul Oblast is located in a dilapidated office building off the main square. The statisticians work in a small dark office compiling data by pencil on individual sheets. Moreover the data are not filed within a standard data filing system rather they were stacked on the shelves of the statistician in charge of this department. Historic data (older than the current year) are located in a vault and either not available for consultation or cannot be located.

[3] For a glossary of terms related to Kyrgyz social structure, see Glossary of Terms, Appendix C and discussion in chapter three following.

[4] In 1939 there was a limited census. The results were published in ten pages and the data that were published never went beyond the aggregate level.

[5] For a detailed listing of all the information contained in the Censuses see Clem (1986)

[6] Ordered as a necessary prerequisite to the first five-year plan that commenced in 1928, it is arguably the most comprehensive of all Soviet censuses and possibly more comprehensive than the 1897 census.

[7] The 1959 census has the advantage of not only showing 1959 data but also drawing comparison to 1939, hence obviating some of the deficiencies of that census.(See 3 above)

[8] Formerly known as by its state-planning name of "Goscomstat", the agency since 1994 has been named The National Committee on Statistics for the Republic of Kyrgyzstan or *Natkomstat Kyrgyzskoy Respubliki*. In this dissertation this is often abbreviated to State Statistical Committee.

[9] Notwithstanding the availability of six censuses, their use for tracing historical evolution is limited. This is because the censuses enumerated different characteristics of the population in different censuses. Thus one census may enumerate one facet of the population and not provide that information in subsequent years. Furthermore in the case of Ysyk-Kul the boundaries of the census area changed considerably. In 1896 the main division was by Uzed (district), in 1926 the division was a census district, in 1939 and 1959 Ysyk-Kul was covered by data called "Urban-Type settlements" (*poselki gorodskogo tipa*) and at the oblast level but the oblast, Tyan-Shan oblast, also covered part of today's Naryn oblast. In 1970 and 1979 the census used oblast and Krays as the census unit.
In the case of the Ysyk-Kul region, the original oblast was Tyan-Shanskaya oblast formed in 1936 on the establishment of the Kyrgyz Autonomous republic. Ysyk-Kul oblast was reestablished in 1970 after being formed in 1939 and abolished in 1959. Naryn was formed as an oblast in 1939 and abolished in 1962. In the 1959-1970 period therefore all data is aggregated under Tyan-Shanskaya oblast. Naryn oblast was reformed in 1970 abolished in 1988 (and joined to Ysyk-Kul) and reformed in 1990.

[10] See Wegren (1993), Van Atta (1993) and Brooks and Lerman (1994). This emphasis on aggregate level data and analysis is a result of the limited data published in the censuses from which most of the data come. The 1898 and 1926 censuses were the most comprehensive. From 1939 most census data was published at the aggregate level. In some limited cases the data was presented at the oblast level or as "Urban-Type

settlements" (*poselki gorodskogo tipa*) and only in the cases of Frunze (Bishkek) was an individual city delineated.

[11] See Van Atta (1991) and Gray and Marsh (1992) and Prostermann and Hanstead (1993).

[12] Brooks and Lerman, while obtaining data from some 1800 farmers, also aggregated their data to a regional level to draw comparisons between five provinces in Russia.

CHAPTER 3: THE REGIONAL GEOGRAPHY OF YSYK-KUL OBLAST

By any judgement of scenic beauty, Kyrgyzstan is a spectacular country. It is predominantly mountainous with only 13 percent of its land area less than 1500 meters in height, while more than 40 percent of the land area is more than 3000 meters[1] in height. This preponderance of mountains, part of the northernmost extent of the major Central Asian ranges, is collectively called here the Kyrgyz Ala-Tau ranges.

The oblast under study, Ysyk-Kul Oblast, is a major modification to this general picture. It is located some 175 kilometers east of Bishkek, the capital, and is dominated by Lake Ysyk-Kul. Access to the oblast is by a road from Bishkek which runs some 80 miles east until it plunges north above the Chui River valley through a ten mile gorge to emerge into a wide expansive valley. At first view the lake is unimpressive, but as one approaches the city of Balakchy the ranges of the Tien Shan rise majestically along the south shore and the lake quickly displays why it is the second largest mountain lake in the world [2]. The long, wide intermontane [3] valley in which it lies is believed to be fed by thermal waters rising along structural faults.[4] The lake never freezes, hence the name Ysyk-Kul, or "warm waters." The modifying influence of the warm lake waters and the lacustrine features on the edge of the lake, particularly the long alluvial valley east of the lake, create the potential for a significantly different agricultural region from that found in the rest of the mountains.[5] A distinct microclimate permits fruits, vegetables, and arable crops, while the more mountainous areas can support large populations of sheep and cattle. Notwithstanding the distinct physiographic nature of the Ysyk-Kul region, the lake is at a relatively high altitude of 1,630

meters or 5,280 feet.

Physical Geography

The physical geography of Ysyk-Kul Oblast creates significant challenges and opportunities for the rural population. In particular the climatic conditions caused by or modified by the lake have profound repercussions on vegetation, crops, soils and water resource management. These issues will be examined here. These physical features that made Ysyk-Kul so important as an agricultural region have created, as a corollary, a distinctive cultural make up for the region. In a cultural context these include significant and distinct demographic patterns, language differences and differing ethnicities present within the region. All come together to create a multi faceted human geography which impact the rural geography. These cultural differences will also be described in this chapter.

Climate

The presence of the lake and the rainshadow effect caused by the Kyrgyz Ala Tau in the west means that Ysyk-Kul enjoys a modified continental climate. Average annual summer temperature is in the 27-30 degree centigrade range while in winter the average annual temperature is in the minus 12 to minus 18 range. Because the western ranges intercept much of the moisture from the prevailing westerly winds, the lake experiences little cloudiness and the area enjoys 2600-3000 sunshine hours per year which is more than adequate for most temperate crops. However, rainfall is a limiting factor. In the immediate rainshadow area at the western end of the lake rainfall amounts can be as low as 120 millimeters (5.00"). In the eastern part of the region the lake exerts such a strong influence on the local climate, coupled with weather systems moving south through the Karkara valley, that the climate is comparable to the lower more salubrious climes of the steppes with up to 1000 millimeters (40") of precipitation (National Atlas of Kyrgyzstan). At

higher elevations precipitation is, of course, much heavier. Maximum rainfall tends to fall in the spring. The high evapotranspiration rates and uncertain and often limited precipitation make irrigation of crops an important part of the agricultural makeup of the oblast.

Water Resources

The generally semi-arid nature of the climate and the presence of the high mountain ranges and the resultant water storage capacity in the form of water, ice, and snow makes irrigation the prevailing issue in water resource management, not just for Ysyk-Kul but also for Kyrgyzstan and for much of Central Asia.[6] 80 percent of the Kyrgyz irrigation system is of the flood type. Center pivot irrigation is particularly important in Ysyk-Kul, particularly in the drier western part of the oblast and on those areas bordering the lake where the underlying soil is thin and unconsolidated. It is only in the eastern part of the oblast where there has been a considerable deposit of alluvium that flood irrigation is a viable and preferred technique.

Regional Patterns of Irrigation in Ysyk-Kul.

Irrigation has a long history in Kyrgyzstan. The Soviets inherited a system that was very ancient.[7] However maps show that in Ysyk-Kul the irrigation system was very rudimentary prior to the arrival of the Russian immigrants. What irrigation the earliest settlers found was subsequently rationalized by the Soviets to suit the collectivization of the farms. [8] Over the period of the Soviet regime the system was modified to the extent that construction of headworks, water delivery, and drainage systems is identical to that in other former Soviet republics. Thus, systems identical to the Kyrgyz system are found in Georgia, Armenia, and Kazakstan, but irrigate different crops in these regions.

In Ysyk-Kul the irrigation system is a completely above ground system, and any type of underground irrigation or transportation, except in pipes, is unknown. This might be expected from

the nature of the unconsolidated underlying alluvial material. The irrigation network of Ysyk-Kul is typical of the system in place in Kyrgyzstan and may be divided into two independent systems, each with a particular operation related to the terrain, type of crop, and field system it serves.

The first system is found in the alluvial eastern lowlands, where the irrigation network consists of a series of large feeder canals built in the 1970's, the Komsommol and Srebnemauskuu canals, running east west down the valley and fed from rivers in major valleys emerging from the Ala-Tau. The second system is where water is intercepted immediately upon exiting the mountains and irrigates the land from a local feeder network (that is, there are no arterial canals) before being returned to the river. This system is predominant in the valley of the Tyup River and on the south side of the Dzergalen River[9]. Potatoes and cereal crops are the major beneficiaries of land irrigated in this fashion. Bond and Micklin (1993) have recently noted that withdrawal of irrigation water from Issyk-Kul have reached such an amount that lake levels are falling. Furthermore the level of pollutants into the lake from agriculture in particular necessitate more proactive water management than has previously been the case.

Local patterns of Irrigation in Ysyk-Kul

The irrigation system in Ysyk-Kul is very efficient for a flood system. From all of the major arterials there is a subsystem of smaller canals from which water is drawn off by a series of headworks and local gates to trenches from whence individual fields are watered by the flood irrigation method. In many places the Soviets lined these trenches with concrete for more efficient flow. The floodwaters are collected at the ends of fields by a collector system that feeds water back to the subsystem and hence, ultimately, to the natural watercourses draining into the lake. The amount of water lost to evaporation is comparable to that lost to evaporation in similar climates such as West Texas as many of the channels are sheltered by trees lining the watercourses

(USDA.Pers.Com). It is estimated [10] that 8-9 mm. of water per day are lost to evapotranspiration, most during the hot summer days of July and August when daily temperatures may rise to 35 degrees centigrade.

Where the delivery system is lined, the channels consist of a "three-sided square" of concrete in the form of a U. The concrete channels are joined every forty feet or so with a one inch rubber seal, sealing the join. In many places the delivery system is still via an earthen trench. The system is described as very efficient for this type of irrigation; indeed, the planning to get the optimum flow rates both in the feeder canals and on to the fields is described as difficult and commendable. Finding the precise slope in a contoured field in order to get equal coverage for all the field and then return unused water to an efficient collector system is a significant challenge.

Irrigation of crops in Ysyk-Kul begins in April. Watering begins when the need becomes apparent and continues until the crop is in danger of being overwatered. Thus, for a crop receipt of 100 cubic meters, water would flow for three or four days. Irrigation continues through the summer and into September if the soil is dry and water is needed for preparation for planting winter cereal crops.

The volume of water used for irrigation in Ysyk-Kul is high or almost double that which is required to grow such crops in other parts of the world. (Choresh, personal communication.) The average utilization of water for crops in Ysyk-Kul is noted in table 3.1.

Water Resource Management in Central Asia

The drainage pattern in Central Asia, and in particular the position of Kyrgyzstan as a major upstream source of the Syr Darya River, is a major factor in the future allocation of irrigation flows. However, the waters of the Ysyk-Kul basin are contained within the basin and none flow out

Table 3.1. Crop Yields in Ysyk-Kul Oblast, Kyrgyzstan in Comparison to U.S Yields

CROP	Ysyk-Kul		U.S. Average 1996	
	Application in Cu.m per Ha.	Yields in Tonnes per Ha.	Application in Cu.m per Ha.*	Yields in Tonnes per Ha.+
WHEAT[11]	6,000.	1.3	4,826	2.44[12]
CORN (for Grain)	800-1000		4,572	7.97
VEGETABLES	500-600	14.2		
POTATOES		12.1		25.29
ALL HAY		2.1		5.79 (Alfalfa 7.33, all others 4.28)
PERENNIALS		5.5 (Probably Alfalfa)		
SUGAR BEET		10.6	6,096	45.02
COTTON [13]	13,000	0.2-0.3	2,540.	0.79

* Long Term Average West Texas.
+ U.S National average

Source: Ysyk-Kul Oblast Statistics Office 1996 and U.S Department of Agriculture 1997.

into the plains. Ysyk-Kul Lake is not drained by any river. However, the lake level has fluctuated significantly and is believed to be currently receding (Ratkovitch, 1977). As a result traces of former settlement may be becoming evident from a time when lake levels were even lower than present.[14] Geopolitically, the fact that some of the water in the Ysyk-Kul Oblast exits into China where it drains into the inland Tarim basin is worth noting.

Vegetation, Forestry and Soils

Vegetation follows a classic seral change as elevation increases. In the lowlands or steppes, poplar (*Populus spp.*) and elms *(Ulmus spp.)* are the predominant species. Most were planted bordering roads and watercourses by the early settlers. Willow (*Salix sp.)* is also found along natural watercourses. At higher elevations juniper *(Juniperus spp.)*, pine *(Pinus sp.)*, spruce (*Picea spp)* and birch *(Betula spp.)* predominate. While large forested areas are not present in most of

Kyrgyzstan, the eastern end of Ysyk-Kul on both north and south facing slopes have significant forested areas remaining. These areas constitute just under 10 percent of the total forested area of Kyrgyzstan. In the 1920's this was the basis for a small lumber industry and wood is still a significant construction material, although today the majority of the lumber is imported from Siberia. Overall, there do not appear to have been large timber resources in the immediate historical past. Thus, a significant trade in wood and wood products may have been an important part of the patterns of the movement in consumer goods. The Ala-Tau in Ysyk-Kul Oblast are high enough to permit only alpine and sub-alpine species to grow at the highest elevations.

The agricultural practices of the people have modified this natural vegetative cover. The lowlands, formerly covered with grasses, are now extensively used for arable purposes.[15] Wheat is by far the most popular arable crop in Ysyk-Kul Oblast on the bottomlands. Much of the mountain and intermontane slopes have been converted to pasture and fodder crops.[16] The predominant grasses of the natural pastures are fescue *(Festuca valesiaca)* and, where overgrazing becomes a feature, artemisia (*Artemisia spp.)* species become predominant. At higher altitudes, potentilla and alchemilla invade overgrazed areas. The most common fodder crops are lucerne (*Medicago sativa)* and barley.

The soils of Ysyk-Kul were formed as a response to the physiographic history and the vegetation type. In the Ysyk-Kul valley, the classic steppe may be found, characterized by luxuriant grasses *(Stipa spp.),* and underlain by chernozems and partly by chestnut-brown soils. As many of these soils were formed on alluvial deposits of the post-glacial rivers of the Ala-Tau, the soils may be up to six feet deep and very fertile. In the absence of wood for construction, the alluvial clays took on additional importance as a source for mud bricks. In the western part of the Ysyk-Kul valley there is a wide expanse of aolian deposits. It is assumed that this area is a result

of climate and post- glacial sand accumulation and represents an area of poor soil development and, hence, little agricultural usage.

Human Geography

Demography

Although Ysyk-Kul is not a highly populated oblast, demographic change has the potential to be the major influence on the development of its human geography over the next few years. In 1989 there was an estimated 403,917 [17] persons of which 68 percent were rural inhabitants and 32 percent urban. Karakol, the largest urban center with 66,920 persons in 1996, is the fourth largest urban center in Kyrgyzstan, [18] and is located on the Eastern Shore of Lake Ysyk-Kul. At the western end of the lake the city of Balakchy, with 42,000 inhabitants in 1996, is also a significant urban settlement. However, the agricultural productivity of the surrounding valleys has created large rural population densities in the region. Both the north and south shores have settlements strung out along the one road running along the shore, and the eastern valley has large villages strung out along the piedmont fringe. Cholpon Ata and Ananyevo on the north shore and Kyzyl Suu (formerly Pokrovka) on the south shore are the most populous of these settlements.

The major administrative divisions of the country, the oblasts, were created by the Soviets to not only reflect the physical divisions of the country, but also to enforce a policy of mixing the various ethnic groups that inhabit this part of the world. The immigration of different ethnic groups and the political divisions imposed upon the region in the Soviet era had a corresponding impact on the ethnic divisions within the individual oblasts. Ysyk-Kul has an ethnic mix much like that of the rest of Kyrgyzstan. On the dissolution of the former Soviet Union the ethnic make up was as noted in table 3.2.

However this conceals significant ethnic concentrations within the oblast which have a

bearing on the differing cultural attributes and practices of the ethnic groups: [19] From table 3.2 it is

Table 3.2: Ethnic Breakdown, Ysyk-Kul Oblast, Kyrgyzstan 1989-1995

Ethnic Group	Ysyk-Kul Oblast		Karakol	Kyrgyzstan	
	1989	1995	1989	1989	1995
KYRGYZ	67.67%	75%	36%	52.4%	59.7 %
RUSSIAN	22.9%	15%	43%	21.5%	16.2 %
UZBEK	0.92%		3.9%	12.9%	14.1 %
UKRAINIAN	1.82%	1.0%	4.2%	2.5%	1.7 %
GERMAN	0.42%	0.1%	0.37%	2.4%	0.8 %
TATAR	1%		2.8%	1.6%	1.3 %
OTHERS (Dungan, Kazak,	1.59%		n/a	Other FSU 3.2%	Other FSU 2.0 %
Jewish) + 70 Nationalities				Other 4.2%	Other 4.1 %

Source: 1989 Census and 1995 compiled by author from Ysyk-Kul Oblast Statistics office data.

apparent that the Russians are concentrated in the more urban areas while the ethnic Kyrgyz are predominantly rural. Complicating this picture is the fact that since 1991 there has been a large movement of ethnic minorities out of Kyrgyzstan into their historic homelands. Dunlop (1994) estimates that in 1993 alone, 100,00 persons emigrated from Kyrgyzstan, the majority Russians. In Ysyk-Kul Oblast the emigration of Russians, Ukrainians, and Germans has been much like that in the rest of Kyrgyzstan.

The proportion of ethnic Russians has decreased from 22 percent of the population to 15 percent, and numbers of Ukrainians and Germans has dropped from 1.8 percent and 0.4 percent to 1 percent and 0.1 percent respectively in the seven years since 1989. This precipitous decline now means that there are very few ethnic Germans still resident in Ysyk-Kul oblast. This has meant that the percentage of ethnic Kyrgyz has increased from 67 percent to over 76 percent. The proportion

Plate One: Ethnic Germans lining up for exit visa's. Consul-General of Germany Almaty, Kazakstan, June 1996.

of other ethnic groups are relatively stable (Table 3.3).

Table 3.3: Changing Ethnic Mix. Ysyk-Kul Oblast, Kyrgyzstan 1989-1996

	1989	1990	1991	1992	1993	1994	1995	1996
Kyrgyz	273,257	281,002	289,441	296,889	305,063	312,282	318,251	322,746 (76.5)
Russian	92,615	92,898	92,027	87,372	80,659	70,386	64,804	63,676 (15.1)
Ukrainian	7,366	7,335	7,206	6,834	6,125	5,203	4,588	4,365 (1.0)
Uzbek	3,756	3,832,	4,138	4,097	4,119	4,113	4,153	4,149 (1.0)
Kazak	6,433	6,540	6,693	6,861	6,954	7,007	7,049	7,061 (1.7)
Tatar	4,013	4,048	4,275	4,213	4,054	3,774	3,658	3,588 (0.9)
German	1,770	1,724	1,637	1,385	1,108	816	463	356 (0.1)
Others	14,707	15,078	15,420	15,588	15,659	15,560	15,550	15,595 (3.7)

Source: Ysyk-Kul Oblast Statistical Office 1997

In Karakol, Tokoniev (1995, personal interview) estimates that 2,000 ethnic Russians, or 3.5 percent of the population are leaving the city for Russia every year.

The reasons for the exodus of German and Slavic ethnic groups are numerous. Since the last official census in 1989, it is suspected that as a result of the changes occurring in the farm labor sector, there has been a significant migration of young Kyrgyz from rural areas into the cities, resulting in higher unemployment, crime, and harassment of Russians. Furthermore, the perceived or real favoritism for Kyrgyz in housing, employment, higher education and language rights, especially directed at the less than eighteen age group, has caused a fear of pogroms.[20] Finally, the prospect of higher wages and pension benefits in Russia and the close proximity of the war in Tadjikistan have created a significant exodus. The concentration of Russians in the cities and their exodus has caused major structural problems in the economy. Russians held most of the key positions in science, education and industry, and all of these sectors are feeling the departure of these key individuals. In the rural sector, the loss of the predominance of ethnic Germans in intensive market gardening activities and construction has been particularly felt. Yields in products produced close to the city fell immediately following independence, as the Germans emigrated to the new Germany.[21]

Other Cultural attributes.

The Kyrgyz people speak a language that is Turkic in origin, a product of migration in the sixth century from Turkic hearths in what is now southern Siberia. Today language is one focus of Kyrgyz nationalism, to the extent that the Slavic-speaking Russians and Ukrainians see it as a force for removal from both positions of authority and from the country. Added to this, the fact that 70 percent of ethnic Kyrgyz are Muslim creates a significant division in the largest population groups.

The rise of Kyrgyz nationalism is a recent phenomenon. In Soviet times all were considered a homogenous united socialist group. With the breakup of the former Soviet Union, Kyrgyz leaders saw the need for national unity and embarked upon a program to capture or revive this unity. Language laws were passed, new cultural symbols were acquired (flags, money, mosques) and Kyrgyz cultural history was revived both in literature and the arts. Most significantly was the use of the legendary epic figure "Manas" as a focus and model for Kyrgyz nationalism. To date, the President of Kyrgyzstan has sought to assuage the feelings of alienation of the Russian minority and to discourage their departure, [22] but ethnic harmony remains a significant challenge for the future.

Political Geography

The Ysyk-Kul region has been in the forefront of the geopolitical forces shaping Central Asia for millennia. The political geography is best explained by the appreciation of three major geopolitical realities:

- The need for the Russian empire to establish a southern boundary 1300-1996
- The proximity to China
- The ethnic mix that had evolved by the establishment of the Kyrgyz SSR in 1936

Expansion of the Russian empire by the Czars expanding outward from the Moscow core, was always predicated on the need for secure frontiers. This need was particularly acute on the southern frontiers, where a succession of ambitious and belligerent khans and emirs created an unstable and worrisome frontier for the czars. Thus, even before the final subjugation of the region in 1878, Russian political geography was concerned with the acceptability of the prevailing powers in and adjoining the region. In the years following 1862, Russian immigration into the region had the dual benefit of not only opening up new land, but also infusing the region with the presence of a

trusted ethnic people.

This situation was always overshadowed by the political ambitions of the Chinese. As early as two thousand years ago, the Chinese had laid claim to that part of Kyrgyzstan as far as the Chui valley, and the indeterminate border and the movement of ethnic nomads across the borders made the establishment of a permanent boundary difficult. The political upheavals of the twentieth century in China permitted the Russians to establish and solidify the current boundaries of Kyrgyzstan but formal recognition of the eastern boundary of Kyrgyzstan in Ysyk-Kul Oblast has yet to be given by the Chinese.[23] Complicating both the Chinese and the Russian geopolitical aims is the presence of large ethnic minorities in the region; ethnic Kyrgyz and other Turkic-speaking ethnic groups stretch from Tadjikistan into China. In Ysyk-Kul, Kyrgyz are the dominant ethnic group, but significant numbers of Kyrgyz are also found in China, Tadjikistan and Afghanistan. Uighurs span the Chinese/Kyrgyz/ Kazak border region, and the Uzbeks in the Ysyk-Kul valley regard the Uighurs in China as Turkic brethren. As a response to this, China has always regarded the Xinjiang Uighur Autonomous Region as a lucrative region for immigration of Han Chinese from other, more densely populated, regions of China. The agriculturally productive arable areas of Ysyk-Kul, and the large pastoral areas would constitute a similar prospect for Chinese immigration in the event of replacement of the Kyrgyz government by Chinese rule.

Infrastructure.

The existing infrastructure of Ysyk-Kul Oblast is poor. Access to the lake is only possible by means of a poorly maintained, two-lane road or by means of a single-track rail line to Balakchy from Bishkek. At Balakchy, one road runs to Karakol around the south shore of the lake and one road around the north shore. From Karakol it is possible to travel east into Kazakstan, but the road is unimproved. A road leads from Karakol to the former tin mining town of Enilchek but in winter

months it is impassable because of snow. Roads constructed by the Soviets for the seasonal movement of livestock also lead into the mountains, but since independence they have received little or no maintenance. Work has commenced on a road from Almaty, Kazakstan to Cholpon Ata, thus cutting the distance from Almaty to Ysyk-Kul lake by some 200 miles. However, whether there will be sufficient funds to finish the project remains a major question. Karakol, Cholpon Ata and Balakchy have commercial airports, but fuel shortages experienced by domestic airlines severely curtail flights.

History of recent economic change-Macro-economic patterns.

While this study focuses on the local and oblast level, it is important to see how the evolving national policies and programs might influence patterns at the local level. In the years preceding Kyrgyzstan's independence, interrepublic trade was the governing principle of macro-economic organization in the Soviet Union. With the demise of the Soviet Union and the introduction of the market economy, Kyrgyzstan was required to rationalize and adjust its trading partners. The preexisting patterns of trade were the basis on which it structured its economic activity, and it seems it will be the type and magnitude of interrepublic trade that will have a major impact on the ability of Kyrgyzstan to survive and prosper. Watson (1994) has assembled the data on interrepublic trade for the last year of the Soviet Union's existence, in both ruble and dollar equivalents. He notes that overall Kyrgyzstan posted a negative balance of trade both in dollar and ruble terms. Furthermore he points out that Kyrgyzstan depended on Russia (50 percent) and other Central Asian Republics (25 percent) for the majority of their imports and exported one-third of their exports to other Central Asian Republics and most of the rest to Russia and Ukraine. Very little of Kyrgyzstan's exports went directly to the world market. Overall, notwithstanding the importance of the agricultural resource base, Kyrgyzstan was a net importer of agricultural

products and inputs and only hydroelectric power was a significant export.[24] If commodities were traded at world prices in 1990, Kyrgyzstan would have had a trade deficit of 33 percent. Most of this deficit may be attributable to energy imports.

On August 31, 1991, the Republic of Kyrgyzstan became an independent nation. While many economic ties to the other republics of the former Soviet Union remained, Kyrgyzstan embarked upon a change to a market economy. The major transformation took place in the area of privatization of commerce, industry, and agriculture.[25] During the course of privatization, the economy collapsed owing to the loss of markets, the cessation of industrial inputs, and the general inefficient and antiquated nature of most of the industrial enterprises. In essence, this has meant that exposure to a world market has left them unable to compete. Thus in the three years following independence the economy contracted by almost 40 percent. Inflation was rampant up to 1993 (23 percent per month). In 1994, real GDP fell by 26 percent and industrial output fell 30 percent but this decline may be exaggerated because barter, as part of a private economy, has replaced formal transactions in lieu of a stable economic and monetary system (World Bank 1994).

This unstable situation was alleviated somewhat with the introduction of a currency that's free from the ruble (the Som) in 1993, and massive support in the form of International Monetary Fund loans has helped bring inflation down to a manageable 32 percent in 1996. Moreover by 1996 there were signs of recovery. Real GDP grew 2 percent and the budget deficit was reduced from 12.8 percent of GDP to around 6 percent (Goscominvest 1996). In particular, in the last year there have been signs that the slide in industrial decline has ended, industries are still working at greatly reduced capacity, and there is little prospect of returning to full production in their present state. This industrial decline has major repercussions for social and economic stability and growth. In particular the existence of a moribund industrial sector puts pressure on rural areas to retain

population.

Overall, the stability of the Kyrgyz government permitted international aid agencies to pledge $680 million in 1996. In 1997 over $450 million has been pledged from multi- lateral aid sources. The government has unveiled a long-term economic development plan that will see, by 2005, an annual growth in real GDP at 8 percent and inflation down to 8 percent.[26]

Commerce and Industry

Agriculture has always been the major activity in the Ysyk-Kul region and has always been either pastoral or sedentary. Thus its exports are primarily wool, wheat, and potatoes. It produces about 1/6 of the agricultural production of Kyrgyzstan, even though it has only approximately 1/10 of its arable area.[27]

Its other export industries are also primary in nature and consist of ferrous and non-ferrous metals of which gold, tin, tungsten, and antimony have been or are significant exports. Coal is mined at Dzerghalen but contributes little to the Kyrgyz economy.[28] Perhaps the most important development and prospect for Kyrgyzstan's economic recovery is the Kyrgyz-Cameco joint venture in Ysyk-Kul to extract gold from Ak Shirak mountain, some twenty miles south of Tamga. The reserve is one of the worlds largest and will produce some 500,000 ounces of gold annually from 16.6 million ounces of reserves. As well as significantly affecting the republics balance of trade deficit, the joint venture will employ over seven hundred persons, six hundred in Ysyk-Kul oblast at the mine site and at the marshalling area in Balakchy. It will have a life span of twenty years. Production commenced in 1997 (Cameco Corp. 1996).

Much like the rest of Kyrgyzstan, Ysyk-Kul imports significant quantities of grain, machinery, textiles, and industrial products. However it is the need for energy in the form of coal, oil and gas that severely impacts its balance of trade. Coal is required for the thermal power

stations, gas for commercial and domestic use, and 75 percent of the nation's oil and oil products are imported because there is little domestic supply.[29]

Tourism is often touted as a major potential contributor to the local and national economy as a result of the undoubted scenic attraction of the lake and the therapeutic nature of the local hot springs and lake waters. Distance from major markets and the poor infrastructure would seem to militate against this as a major option, at least in the short run.

Conclusions

The experience of Kyrgyzstan since independence has differed little from the other former Soviet Republics, indeed some have suggested that because of its size, small population, and stable, progressive political leadership it has fared better than some other republics. In the area of agricultural reform it appears that the process of privatization of land has gone further than in any other republic. In particular, while Russia has seen the almost complete re-registration of the sovkhozy and kolkhozy, little has changed in output or structural organization.[30] Similarly, industrial transformation in Russia appears to be moribund and beset by extensive structural and management problems. Economically the Kyrgyz som has been one of the regions most stable currencies, in large part as a result of International Monetary Fund (IMF) loans which, in turn, reflects approval of the economic measures the country has taken to transform its economy.

Notwithstanding the generally favorable macro-economic indicators, there is structural change at the oblast and rayon level that that constitutes the heart of the changes that are occurring nationally and that require detailed analysis. It is the task of the subsequent chapters to provide that analysis.

ENDNOTES

[1] Table 3. 4. Percentage land area by Altitude

Altitude (Meters above Sea Level	KYRGYZSTAN	
	% of Land Area	Area (Sq.Km)
500-1000	5.9	11,796
1000-1500	7.3	11,796
1500-2000	15.1	29,959
2000-2500	14.8	29,299
2500-3000	16.1	31,997
3000-3500	17.7	35,148
3500-4000	16.2	32,111
above 4000	6.9	13,691
TOTAL	100	198,500

Source: National Atlas of Kyrgyzstan

[2] The lake is second in size to only Lake Titicaca in the Andes; Ysyk-Kul is 170 km in length and over 60 km.across at its widest point with an area of 6,236 sq.km. (Kareschkulov 1995)

[3] The eastern alluvial valleys of the Tyup and Dzerghalen Rivers extend some 70 km. beyond the eastern shore of the lake, making the valley some 150 miles long. The northern shore rises very quickly to the Kungey Ala Tau on the north and to the border with Kazakstan and equally as quickly to the Terskey Ala Tau on the south shore. However the Chinese border is not reached until one has crossed the Naryn and Sary Dzjaz Rivers some 40 road miles south of the lake.

[4] The lake is also very deep, some 700 meters at its deepest part.

[5] There have been extensive studies on the influence of Lake Issyk-Kul on local climate and ultimately its theraputic effects. For a summary of the quantitative differences the lake makes to humidity, average annual air mass temperatures and local wind circulation the reader is referred to the Issy-Kul Region Encyclopedia (Kareshkulov 1995). For discussion on its hydrological nature and in particular the possibly imminent threat of environmental damage see Ratkovitch (1977), Znamenskiy (1981) and Bond and Micklin (1993).

[6] In 1995, 10% of Kyrgyzstan's total land area, or 20% of the total agricultural land was under irrigation.

[7] The system in Osh Oblast is believed to be at least 3,000 years old

[8] The question often asked by geographers is by how much could the Soviets change the pre-existing system to reinforce collectivisation and yet still preserve the operational efficiency of the system? This is a subject for more detailed future research.

[9] A third system is found in Naryn oblast that might be called the upland system. In those upland areas above approximately 4,000 feet there is no flood irrigation because the ground is too porous; rather, the local watercourses are diverted to underground or above-ground pipes that carry the water to a trench from whence a tube under pressure delivers irrigation water.

[10] Source: Avi Choresh (1995), Irrigation consultant to the Kyrgyz Government personal communication.

[11] Yields of 70 bushels per acre (4.5 tonnes per hectare) were obseved by Winrock volunteers at the Karakol experimental farm in 1993. However 20 bushels per acre (1.3 tonnes per hectare) were the norm on the communal farms.

[12] Yields of 70 bushels per acre (4.5 tonnes) are common in Idaho-the U.S state possibly most comparable to Ysyk-Kul. Yields on experimental farms and some commercial farms of 144 (9 tonnes) bushels per acre are not unknown in Idaho.

[13] The world's highest yields come from Israel where 7,000-8,000 cu.m. per hectare of irrigation yield over 7 tonnes per hectare

[14] At present Kyrgyzstan withdraws only 9% of the total Aral basin withdrawal, yet it constitutes 25 % of the total basin area. At the present time Smith (1994) estimates that all regions within the Aral Sea basin have sufficient supply, but rising populations, along with the pressure to restore the Aral Sea to its former level and local scarcities have given cause for concern. Specifically, there has been armed conflict in the south of the country between Kyrgyz and Tadjiks in the Tadjik enclave of Isfara over the division of the enclave's water and land resources.

[15] In 1995, 10,700 hectares of the total land area of Kyrgyzstan of 20,266,200 hectares or 53.5% of the land area was agricultural of which 45% was in pasture, 1% in hay, 6.9% arable, and 0.3 % was tree crops. There are few forests (5 %) and thus over 41% of the land area is uncultivable mountainous land. This predominance of mountains is ameliorated by a narrow (never more than 30 Km to the Kazak border), but significant expanse of foothills and Steppe in the northern portion of the country and the wide, alluvial Fergana valley in the south of the country.

[16] Chapters Six and Seven examine at some length the changing land use

[17] By 1996 the oblast population had risen to 421,536. Rural/Urban breakdown had not been published.

[18] Larger are the capital Bishkek (700,000 inhabitants), Osh (211,045), Tokmak (72,000) and Jalal-Abad (70,855). (1989 data)

[19] Table 3.5 Ethnic concentrations in selected cities, Kyrgyz Republic 1989

	BISHKEK	KARAKOL	OSH	NARYN	UZGHEN
KYRGYZ	23 %	36 %	24 %	88.2 %	12 %
RUSSIAN	56 %	43%	21 %	6.5 %	3 %
UKRAINIAN	6 %	4.2%	5 %	-	-
UZBEK	-	3.9%	44%	-	81 %
KOREAN	2 %		-	-	-
GERMAN	2 %	0.37%	-	-	-
TATAR	3 %	2.8%	5 %	-	-

- Indicates negligible percentage

Source: Union of Soviet Socialist Republics *Itogi Vsesoiuznaia perepis naselenia 1989 goda*

[20] More disturbing were riots in the city of Osh in 1990 in which some two hundred people were killed when ethnic Kyrgyz, claiming new land in the Fergana Valley, fought Uzbeks who were seen to be not only on land that was *de facto* Kyrgyz but also receiving preferential treatment for new land.

[21] There are anecdotal reports that many ethnic Germans and Russians are returning to Kyrgyzstan. The principal reasons are said to be that there are few employment opportunities in Germany and Russia and that cultural adjustment is difficult after so many years removed from the ethnic homeland. As one returning Russian told me " It is better to be unemployed here where at least they know you, than unemployed where they don't know you and, what is more, do not want you!"

[22] The most significant measure, according to the Russian minority, was the recognition of Russian as an official second language. This, the opening of a Slavonic University, and vocal expressions of property rights by Russian leaders such as the Mayor of Bishkek has assuagued feelings of alienation somewhat.

[23] Recent Kyrgyz distrust of the Chinese has focussed around the testing of nuclear weapons at Lop Nor in the Talimakan Desert. Kyrgyz believe that tests are only carried out when the prevailing winds are easterly, thus blowing radioactivity over Kyrgyzstan instead of China

[24] Of the 20 power generating units in Kyrgyzstan, 18 are hydroelectric plants. In 1995 Kyrgyzstan had a generating capacity of 4 gigawatts. Production was 12.2 billion kilowatt-hours (kWh) while domestic consumption was 9.1 billion kWh, leaving 3.1 billion kWh for export, primarily to Uzbekistan but some to Pakistan.

[25] For the next step, which was to include medium and large-scale enterprises, a more complex funding and management program was required. The management firm of Price Waterhouse principally carried out this step of major industrial privatization with funding from U.S. AID. Privatization of most of the agribusinesses in Kyrgyzstan came about under this program. The process of industrial privatization is now ending, and all further work on the process of privatization has been vested in the State Property fund of the Republic of Kyrgyzstan.

[26] Inflation was estimated at 32 % in 1996. (Kyrgyz State Committee on Statistics 1996)

[27] Ysyk-Kul was a very important agricultural region during Soviet times, serving as the location and production center for heroin poppies. They were grown for official medicinal purposes, but President Askar Akeyev banned their cultivation in 1993 reputedly at U.S. insistence and as a precondition to U.S. aid monies.

[28] Kyrgyzstan can satisfy about two-thirds of its coal needs, primarily from fields in the southern part of the country. Problems accessing equipment, increasing extraction costs and the cost of imported coal for the large thermal plant in Bishkek is placing this industry in increasing difficulty.

[29] In 1995 oil production was 2,000 barrels per day, but consumption was 8,000 barrels per day. A refinery has recently been built in Djalalabad Oblast that will provide most of the nation's gasoline, but crude feedstock will still be required unless workovers of existing wells or new sources of supply can be found. At present most oil and gas imports are from Uzbekistan. Iran is being investigated as another supply source. (Hancock pers.com.)

[30] "After four years of formal reforms, the traditional agricultural enterprises are still largely intact, and functioning much as they did in the past, although with poorer economic outcomes" according to Brooks *et al.* (1994: p xi.).

CHAPTER 4: TRADITIONAL YSYK-KUL BEFORE 1864

Medvedev (1987) states that " ...current problems of Soviet Agriculture can only be understood by examining the history of the traditional (Russian) rural community." (1:3). In the case of Kyrgyzstan, the rural community was shaped by differing cultural groups diffusing into and, in some cases, invading the area, particularly the spread of Islam into the region from the southwest, and more recently by the in-migration of other ethnic groups for primarily political ends.[1] The history of the region shows three major ethnic or political eras: the period up to 1862 and dominated by the Kyrgyz; the period of Russian colonization from 1862 to 1917 and the final Soviet period from 1917 to 1991. Each left their mark and each is visible in the current rural Kyrgyz society. More importantly, their presence directly affects the future of the nation. Consequently, the following three chapters will examine in detail the three separate histories of rural land use in the region. This chapter will concentrate on the earliest cultural influences in the region which is predominantly that of the Kyrgyz.

Until the mid- nineteenth century the history of the Kyrgyz people was exclusively oral (Hatto, 1990), therefore research into the historical geography of Kyrgyzstan for the first period is difficult. Thus, the researcher is required to utilize three primary resources; the first of which is the oral history that was written down after the adoption of a Kyrgyz language in the last half of the nineteenth century. The best example of this is the "Manas" epic poem, supposedly based on a tenth-century cult hero whose exploits and philosophies have been passed down by aural historians or "Manasschi", the substance of which has recently been transcribed into written works. The poem can take three weeks to recite and is examined here in some detail for it possesses geographical references, and it has never, to the author's knowledge, been reviewed for its

geographical relevance. As such, it provides a unique perspective on early Kyrgyz landscape patterns. Moreover the "Manas" epic is concerned almost exclusively with the Northern Kyrgyz and the Ysyk-Kul area is a key location in the epic.

The second source of information about the region stems from the fact that Kyrgyzstan was visited by a number of authors, adventurers, and explorers in the nineteenth and twentieth centuries. Their accounts and diaries provide valuable views on the rural landscape prior to Kyrgyzstan's inclusion into the Soviet Union. The most noteworthy of these visitors were Chokan Valikhanov (1856), Nikolai Svertov (1865-1867), Stephen Graham (1916), Pavel Stepanovich (a.k.a. Paul Nazaroff, 1920) and, following the revolution, Ella Mailart (1932).

The settlement policies of the Russian czar toward the end of the nineteenth century and the movement of former serfs, emancipated in 1861 by decree of the czar, saw the opening up of new lands for Russian, Ukrainian, and Byelorussian settlers. This set in motion a large bureaucracy to delineate and demarcate lands for settlement. Kyrgyzstan was a recipient of many of these new settlers and most of the settlements in the interior of Kyrgyzstan were established or replanned to accommodate these new settlers. As a third source of data, references made at that time to pre-existing conditions of cultural organization of the Kyrgyz are valuable sources for clues to historic Kyrgyz culture.

The Prehistoric Period, 5,000 BC- 1200 AD

It is apparent from the archeological record that the Ysyk-Kul region has held a position of some importance for settlement and cultural development for some considerable time. Late-stone-age implements that have been found in the area south of Balakchy, and rock carvings of goats, oxen and crops that have been found north of Cholpon Ata testify to early agricultural activity. Bronze-age artifacts have been found at numerous locations on the shores of Ysyk-Kul. It is generally

assumed that the valley was occupied and under agricultural development as early as 1000 BC. The earliest recognizable culture was that of the Saks, who inhabited the valley from the seventh to third centuries BC.[2] The Usuns, who inhabited the region up to the third century AD, succeeded them. Both groups were nomadic livestock herders. The only visible traces of both cultures that remain in the landscape are found in the form of Kurgans, or large circular burial mounds, which are still visible west of Tyup and in the Karkara valley. In regard to the Saks and Usuns, there has been much speculation (See Kaeshkulov 1995 and King 1996) and as to whether there was an early civilization in the Ysyk-Kul valley, the traces of which are now submerged beneath Lake Ysyk-Kul. Pottery shards often wash up on the shore, and the belief that such a proto-modern civilization exists creates a significant mystic about the origin and properties of Lake Ysyk-Kul.

As early as 327 BC, Kyrgyzstan assumed geopolitical importance. In 327 BC, Alexander the Great and his Macedonian armies came from the west to conquer China. He attempted to cross the Kyrgyz Ala Tau in the winter of 327-326 BC and found not only recalcitrant local resistance in the form of the Saks but also the passes snowbound. In the attempt to address both obstacles dissipated his strength, and he was forced to retreat and failed to conquer China, thus preserving the reigning Zhou dynasty.

By the start of the first millennium after the birth of Christ, significant quantities of trade goods were moving between the Mediterranean and China along the line of oases on the piedmont fringes, and the route through Ysyk-Kul was an important route through the mountains to and from China. This so-called "silk road" was important for another 1400 years and was the conduit for much of the cultural transference across the Eurasian continent.

One notable Soviet archeologist claims that Svetyy Mys, south of Belovodsk, was the site of a fourth or fifth century Armenian Church and that the village streets are in the shape of an

Armenian Orthodox cross (Quoted in King 1996).

The first large dominant cultural presence was that of the Turks who migrated from Southern Siberia in the sixth century, and who defeated the Huns who were residents in the Talas area, established what has been called the Western Turkic Khanate. It was gradually integrated with the Sogd State, centered on the already rich centers of Bokhara and Samarkand. The growth of this alliance was marked in Kyrgyzstan by the formation of emergent cities along the silk road, which was carrying trade goods from the Mediterranean to China. [3] Ysyk-Kul had such importance at the junction of these early trade routes that it holds center place on maps of this era. (See map 2)

The region was ruled at this time by Muslim Caliphs in Baghdad and, more latterly, Bukhara, but control was nominal at best. Thus the situation was ripe in the tenth century for the rise of more localized control in the form of the Karakhanids or "Black Khans" who built a large city named Balasagun, now named Burana, [4] and who established a strong presence in the area. The Karakhanids firmly established Islam as the dominant religion in the northern area of Kyrgyzstan.[5]

The Manas Epic. Circa 1000 AD

Perhaps the strongest cultural theme unifying and identifying the Kyrgyz people is that of the legendary hero Manas. In 1995 the Kyrgyz nation celebrated the 1000-year anniversary of the Manas epic with the opening of a major theme park [6] in Bishkek, Kyrgyz games at his presumed birthplace in Talas, and a number of learned conferences on the literary nature, symbolism, and importance of the epic.

The Manas epic is an aural history passed down through the centuries and recited or more accurately sung, sometimes over a period of three weeks, by "Manaschi." The earliest reference to the epic is circa 1792 (Hatto, personal communication). [7] It was first written down in 1856 by a

Russian exploring Central Asia, Chokan Valikhanov, [8] and subsequently and in more depth by a German scholar, Wilhelm Radloff (1837-1918), in a series of visits to Manasschi between 1862 and 1869.[9] All but the poem "Birth of Manas" were recorded from bards of the Bugu tribe and hence are particularly relevant to a study of prehistoric Ysyk-Kul. During the Soviet era the Manas epic presented a number of problems. The subservience of Manas to the Czar and the constant warring between the Kyrgyz did not reconcile well with the Soviet conscience or desires. Thus the Manas epic was suppressed and greatly censored.[10] It is only since 1991 that it has undergone more detailed scrutiny and criticism. The criticisms center around the theses that there are elements within the epic that identify it as based on events that occurred considerably later than the millennium that in which it is touted to have occurred. In a wider context both the historical writings of the aural epic and the songs of the existent Manasschi must be evaluated in the context of not only Pan-Kyrgyz cultural bias but also Pan-Turkic, Pan-Islamic, and most recently the Communist literary climates. Notwithstanding the doubts and caveats, it remains a major source of historical, geographical and cultural description and as such is a major source.

The content of the Manas epic

Radloff (1990) placed the Manas epic into seven volumes. The following gives a brief explanation of the content and the relevance to Kyrgyz geography in the context of rural change. Volume one, the birth of Manas, is a sequential account of the birth and early life history of Manas. In its earliest portions it stresses the importance of genealogy and it is the one poem to place the birthplace of Manas as overlooking Almaty, as opposed to all the other poems which place his birthplace in Talas. The volume takes the opportunity to stress that even in infancy Manas is predicted to be the one to banish the Infidel and that this is followed very shortly by two holy raiding expeditions (Kazat). Finally, the poem traces in Manas's adult existence his success in

exacting revenge against the Chinese of Kashgaria and his role in pushing them out of Xingchiang. Hatto (1991) has shown that the itineraries of the invasions are plausible.Volume two, Almembet, Er Kokco, and Ak-erkec, is essentially a story of a love triangle. The poem makes much of the superiority of Islam as the religion of the Kyrgyz over both Lamaism-Buddhism (as represented by Almembet) and other infidels. In Volume three, the Duel between Manas and Er Kokco, the most significant part is the early reference of Manas being a loyal, but subservient subject of the Czar. In addition this poem details at great length the dueling of major clans over herds. Volume four, Bok-Murun, is perhaps the most relevant geographically of the Manas poems. It tells of a son, Bokmurun, organizing a special memorial feast in honor of his deceased father, the *Kokotoydun Asi* or Khan, a position to which he aspires and to which he may be elected should the feast prove successful. Prior (1995) has masterfully traced the route of Bokmurun across the Northern Ala Tau and into the Ysyk-Kul area around Karkara, leaving little doubt of the authenticity of the route to the feast but, most importantly, the geographical veracity of the Manas epic. Volume five, Kozkaman, traces the long-standing animosity the Kyrgyz hold for the Kalmaks, both for their sedentary lifestyle and for their religion (Buddhist). Volume six introduces Semetey in a poem entitled the Birth of Semetey. The last volume or poem, Volume seven, entitled Semetey, focuses on the preservation of the lineage of Manas through Manas's son Semetey and Seytek, the grandson of Manas. The importance of the patrimonial lineage in Kyrgyz society, especially at the level of the Khan or leader is thus reinforced.

Geographical Veracity of the Manas Epics

The Manas epic is replete with toponymic references. Hatto (1980) lists some 160 place names of geographical significance in the epics. It is customary in Central Asian poetry for these toponyms to be entirely fictitious, but records of Valichanov and tribal records (principally of the Bugu tribe)

indicate that most of the references are to real locations. The most convincing evidence of the veracity of the place names was an expedition of Prior (1996) from August 20, 1994 to October 9, 1994 in which he retraced the route of Kokotoy Khan (Bokmurun) on the journey to the site of the memorial feast. Prior establishes without doubt that the route followed is that shown in map 4. The map also indicates the location of known toponymic references in Hatto (1990).

Pastures, herds and land use

The Manas epic is characterized by games to the death and warring between clans.

The natural result of victory (or defeat) is the gain of control or power over the lands formerly controlled by the opponent. Thus the Manas epic can be seen in the context of assertion of tribal control over both summer and winter pastures.

Manas provides little in the way of land-use references. The most derogatory terms are used for the sedentary "Sarts"[11]

The Manas epic is characterized by the seemingly infinite size of the herds. This Poeidon is used primarily as aggrandizement of the particular chieftain and is therefore hyperbole.

The cultural and political importance of the Manas epic.

Reading the Manas epic provides proof of a number of cultural traits that are important in understanding the current cultural traits and political divisions governing rural land use. First the epic and the telling of the epic suggests that by 1863 tribal culture was already present in the Ysyk-Kul region and was much like the distribution described below in map 5. Moreover the alliances and allegiances of these individual clan groupings were being formed contemporaneously and these groups form the basis for the subsequent government and administrative structure. In particular, the Volosts established by the Russians in 1869, have remarkable similarities to the tribal borders of the Ysyk-Kul tribes. Second the close conformity of the itineraries with real geographical places

and features makes the Manas epic, if originating in the eighteenth century, the first written regional geography of Ysyk-Kul since Hwang and Ibn-Battuta (Hourani 1991). Finally the importance of conflict both between clans for the pastures that meant life or death and for favorable alignment with the major powers of Russia, China, or Kokand makes the importance of this area paramount in the future survival for all players.

The Legacy of Manas

In spite of the lack of recordings of the Manas epic and even less proliferation of the publication of the epic over the one hundred years since Radloff wrote down the epic, Manas, in the six years since independence, has taken on a major unifying and symbolic function for the Kyrgyz nation. Notwithstanding Manas's ugly, bullying, and generally antagonistic nature he has become the symbol of an independent, homogenous Kyrgyz national identity. From organization of formal conferences and the singing of the epic, to the symbol *MANAC* appended to billboards, on bus shelters, and soft drink cans, Manas is the embodiment of all that is Kyrgyz. The apogee of this adoration came in 1995 with the celebration of 1,000 years of Manas. A large theme park was built in Bishkek as the site of an elaborate and costly exhibition to the figure Manas. By default Russians, and other ethnic minorities, are excluded from this idea of being one with Manas.

The Middle Ages 1227-1862

The Mongol hordes of Genghis Khan destroyed all that had previously been flourishing in Kyrgyzstan.[12] The northern part of Kyrgyzstan reverted to a nomadic culture much as is described (contemporaneously?) in the Manas epic. Migration of Turkic speaking peoples from the headwaters of the Yenisey that had marked the populating of the northern area of Kyrgyzstan and particularly what is now Ysyk-Kul was essentially complete by the 1500s.

With the opening of the sea routes to the Indies by Bartholemew Dias in 1487 and Vasco da Gama

in 1497, the northern silk route through the Chui Valley and into China via the Ysyk-Kul area lost its *raison d'etre* and declined to only local or regional importance.

For four hundred years Kyrgyzstan languished under a series of local rulers until in 1820 a powerful local dynasty centered in the Fergana city of Kokand began a major military initiative to control much of Central Asia. They established some thirty-five fortresses including fortifications at Bishkek (Pishpek), Tokmak, and Kara-Balta to control the northern approaches to their capital. The rise of such an influential presence on the southern borders of Russia and the growing British presence in Afghanistan and India was of great concern to the Russians who dispatched military missions into northern Kyrgyzstan from Almaty (Vernoe) to capture the forts and establish Russian control over the area. Finally after a number of abortive attempts to establish firm control, on October 24, 1862, the Russians wrested full control of Northern Kyrgyzstan from the Khokand rulers.

The traditional Kyrgyz way of life. 600 AD-1862

Up to 1862 Kyrgyzstan was still very much a nomadic society, dominated by the seasons and the need to move their livestock to the appropriate grazing areas. In summer the Kyrgyz nomads moved their herds into high summer pastures to find new grazing and to escape from the heat, flies, and mosquitoes of the lowlands. The grazing was always reliable and the movement to the summer pastures or *jailoo* had a mystical quality about it. The older Kyrgyz reflect that it was one of the few times the herdsmen could confer with their neighbors, the pastures were lush and exceedingly beautiful with wild flowers in abundance, and there were none of the rigors of birthing or culls to worry about.

In fall the Kyrgyz moved down from the high pastures into the lower elevation spring and fall pastures, usually close to the areas of semi permanent settlement. Fall was a time of culling

herds and making preparations for the winter and spring was the time for lambing and calving. TACIS (1994) estimates that the carrying capacity of these areas was sufficient to accommodate this biannual grazing and little damage was suffered at the hands of the sheep and cattle.

In winter, conditions were harsh and this in part explains the exuberance over the move to summer pastures. Herds had to be moved to areas with little snow cover or where the ice covering the grasses could be broken by the cloven-hoofed animals. Thus areas like the shores of Lake Issyk-Kul took on additional importance and that explains in large part the intense dislike and animosity the Kyrgyz had for sedentary farmers, who by their presence limited the availability of winter grazing.

This practice of seasonal migration has been a feature of nomadic peoples who live in or proximous to mountain areas. In France it has been described extensively by the French landscape school of Vidal de la Blache who called it the practice of transhumance (See Blache 1935, Faucher 1938 and others).

Socio-Political structure

In order to understand the cultural influence on the evolving landscape it is necessary to understand the importance of the ethnohistory of the Kyrgyz people and the resultant tribal histories, tribalism, myths, and traditions that accompany this history.

Historians indicate that the Kyrgyz people are descendants of the Hunnu or Huns that were so influential in Europe and who would also have ties to the Usuns (see above) Figure 4.1 following indicates the divisions within the major tribes.

Within this social structure there are several key individuals:

The tribe may be lead by a *Manap* -a rich and powerful person and who may be lord of several URUU. Similarly the tribes may be under the rule of a *Khan* or major chieftain.

Figure 4.1 Kyrgyz Tribal Structure.

URUU [13] The Tribe, in the case of Ysyk-Kul, the Bugu
URUK The branch of the tribe. There are 5 branches in the Bugu tribe
UULU The large family grouping
AKSAKAL or Chief [14] **IMAN** or spiritual leader

Source: After Tchoroev 1996 pers com)

The *Aksakal* is a nominated leader of an UULU. There may be more than one Aksakal within a family and it is also possible to have a female Aksakal. Invariably the Aksakal is older, experienced, and passes judgement based on a patriarchal system of authority.

The Iman or Moldau is the spiritual authority. His authority is derived from knowledge of the Koran and is equal to the Aksakal. He may also be called upon for dispute resolution.

Geographical Distribution of Kyrgyz Tribes

By the nineteenth century the spatial organization of the tribal divisions in Kyrgyzstan were set and may be divided as follows:

Figure 4.2 Major Tribal Divisions Kyrgyzstan.

KYRGYZ PEOPLE		
RIGHT WING	**CENTRAL WING**	**LEFT WING**
On Quanat	*Ichkiik*	*Sol Quanat*
(NorthernKyrgyz)	(Pamir-Fergana region)	(Osh Region)

Of the Northern Kyrgyz there were seven major tribes. Their geographical distribution was roughly:

Figure 4.3 Tribal Areas Kyrgyzstan.

LOCATION	KYRGYZ TRIBE
Bishkek-Kara Balta	Soltou
Tokmak-West Issykul	Sary Baguish ("yellow Elk")
S.Issykul to China	Sayak ("Newcomers")
Karakol Region	Bugo("Deer")
Naryn region	Mongoldar and Sayak
Talas Region	Kuschou and Saru
Osh region	Monduz

Map 4.1 indicates the major tribes resident in the Ysyk-Kul area in the mid-nineteenth century. It is clear that the predominant tribe is the Bugu but with significant concentrations of other tribes within this general area.

Traditions and myths

The nomadic nature of the Kyrgyz makes individual elements in the physical landscape a very important part of their cultural tradition. Certain areas have great symbolic meaning to the Kyrgyz and are a major part of their sense of place in the landscape. Among these elements are:

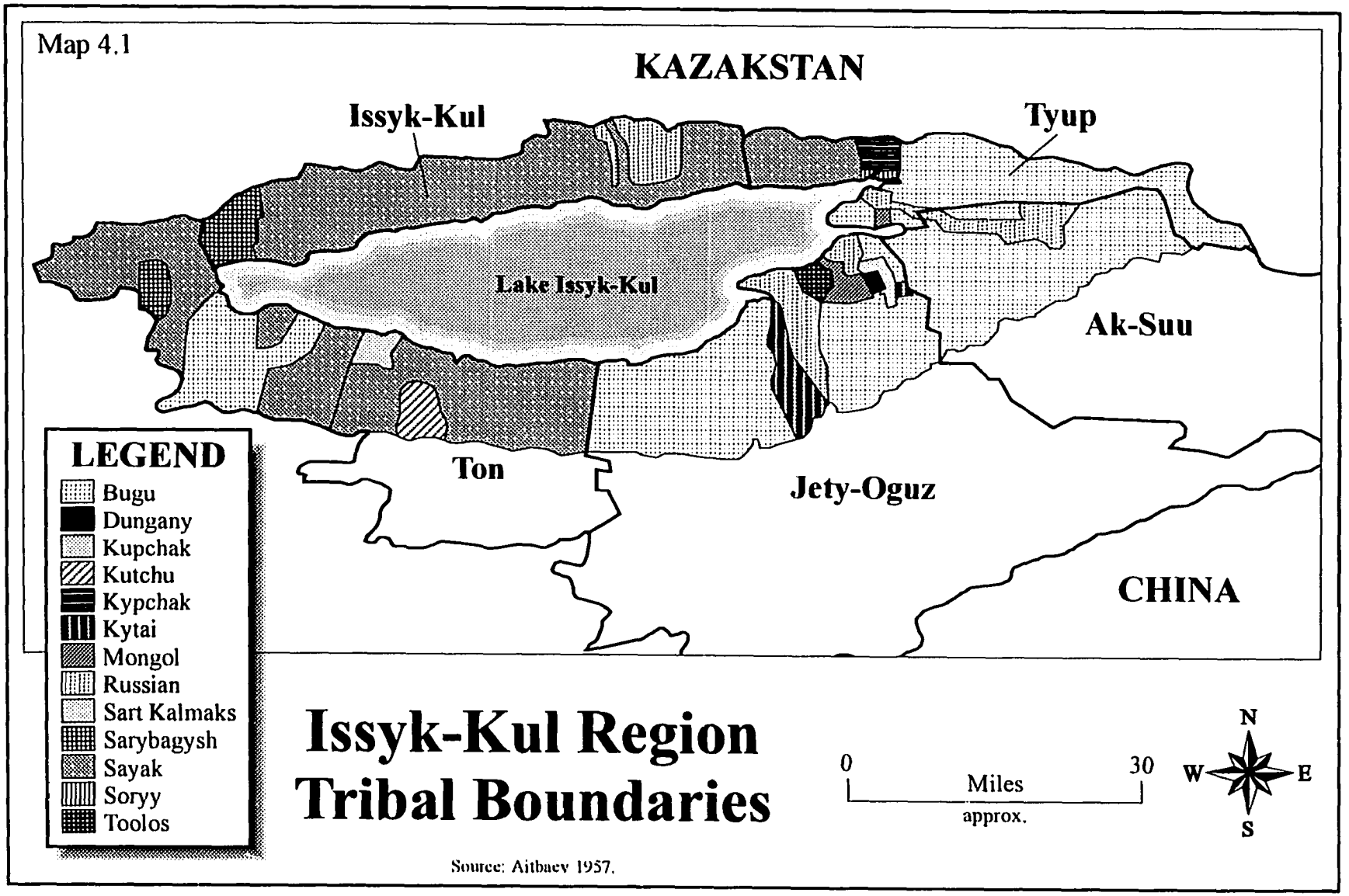
• Isolated trees in a field or mountain pasture.

• Natural springs. The water symbolizes cleanliness and rebirth.

• Trees near churches or holy ground. This is especially important if the tree is growing naturally.

•Certain trees close to roads. These trees are called "mazar" and are a site for prayer, and small cloth strips are tied to the trees. These sites are often found associated with the springs.

•Burial places have a special significance as the site of ancestors. Every May families are required to visit the cemetery and pray for their ancestors[15].


Map 4.1
KAZAKSTAN
Issyk-Kul
Tyup
Lake Issyk-Kul
Ak-Suu
Ton
Jety-Oguz
CHINA
LEGEND
Bugu
Dungany
Kupchak
Kutchu
Kypchak
Kytai
Mongol
Russian
Sart Kalmaks
Sarybagysh
Sayak
Soryy
Toolos
Issyk-Kul Region
Tribal Boundaries
0
30
Miles
approx.
N
W
E
S
Source: Aitbaev 1957.

Similar to the importance of the supernatural, there are a number of traditions that govern how the Kyrgyz function within the natural environment. The most important is the tradition of "Teuleuh". This is a generic tradition that is used for any number of misfortunes that befall a family or village. It involves the sacrificial killing of an animal, usually a sheep, prayers lead by the Imam, the communal cooking of the meat, and the making of bread. A Teuleuh will take one day and is often made during periods of drought, when it takes place in a field. It is also part of a funeral rite and may even be made in the event of a car crash! For major disasters, involving perhaps heavy village mortality, a white horse may be sacrificed.

The second major cultural traditions that impact the landscape are traditions connected to mortality. Upon the death of a village member, one person is designated to inform all other tribes and families (Uruu and Uulu) and then kill a sheep in response to the death ("uch-illik"). The body is placed in a yurt for three days at a location removed from the site of death. After three days a second sheep is killed [16] and the shrouded body with the head showing, is taken by men only on a flat wooden board to the cemetery. The wife will sing a "Koshok" or Kyrgyz burial song while the body is removed. It is buried in the communal cemetery facing Mecca (in Ysyk-Kul this direction is southwest). If the person is buried in a mausoleum a lock is placed on the door. After seven days another sheep, horse, or cow is killed and after forty days another sacrifice is made.

Tribalism, Myths and Traditions; the Soviet Period and Independence.

The coming of the Soviets was marked by a practical recognition of the influence of tribal structures and divisions to divide and rule the native Kyrgyz. Thus positions of power in the autonomous republic were apportioned on the basis of tribal divisions. However, at the local level tribal organization was seen to be a threat to the local Soviet government and hence in social and political circles communist control was substituted. In the area of mythology and tradition the

Soviet period saw a concerted effort to move away from the myths and traditions that permeated the society, but in this it was singularly unsuccessful, [17] in part because of the strong religious basis for many of the cultural traditions and also because myth and superstition did not pose a direct threat to the political ideology of the communists. Indeed Dienes indicated in 1987 that as the Soviet period progressed " A cultural transformation, however, (is) proceeding not through direct "metropolitan" influence, but through the influence of an increasingly sophisticated, culturally complex and often ambivalent elite" (Dienes 1987. p. 122).

Settlement Types.

As a principally nomadic people the Kyrgyz relied heavily on an impermanent structure that was easy to assemble, easy to transport and yet possessed with the qualities of warmth and spaciousness and was functional for cooking, sleeping and socializing. The result was the "yurt" or "yurta", a round felt-covered structure, which is assembled around a willow lattice and has a hole in the roof for smoke to exit. It is extensively used today and probably enjoys a long history. In the valleys and winter settlements, mud-brick buildings were utilized for livestock, but the Kyrgyz utilized the yurt year-round for living. In the Ysyk-Kul valley permanent mud-brick buildings were used earlier by the sedentary Uzbeks, but it was only with the coming of the Russian settlers in the 1870s and the semipermanence of Kyrgyz settlement that followed, that fired-brick and timber were used for house materials (See Chapter 5).

The Advent of the Russians

The rise of the Khokand Emirate in 1820 and the increasing power and presence of the British in India and Afghanistan[18] forced the Russians Czars to pay attention to their southern flank. Thus in the first half of the nineteenth century the Russian Czars sponsored "scientific" expeditions into Central Asia to document the area for military purposes and/or colonization. Many were

geographers sent out by the Russian Geographical Society in conjunction with the Russian military. Among the earliest were Valichanov (1856) and the great Russian geographer Pyotor Seminonov Tyan-Shensky (1856-57). Such was the extent and impact of his explorations in this area that his name was changed to Tyan-Shensky after his explorations in the Central Asian ranges. He was succeeded by such figures as Golubev (1859-60), Veniukov (1860-61), Pzozenko (1862-63), Lezche (1863), Severtzov (1864-68), Poltozatsky and Osten-Saken (1867), Kraevsky (1868), and Kaulbars (1869) (See Berg 1949).

Of these explorers Severtzov, an ecologist, published in 1873 a detailed account of his journey and findings. His map of 1868 is revealing in that it only identifies Karakol and Barskan as settlements, notwithstanding the detailed and accurate nature of the physical geography. Of particular interest in the accompanying text, he notes the existence of "Ploughs, barley and bulrushes" as noticeable features already widely existent in the Ysyk-Kul area. It is clear from his writing that settlement planned by the new Russian administrators was already occurring when he stresses that "Russians cannot use the land as effectively as Middle Asians" and that "while the process of colonization is a positive process, the peasants should be able to choose where to cultivate according to there own agricultural norms rather than the government dictates." (Severtzov, 1873). The preexisting farming noted by Severtsov was the forerunner to an extensive period of colonization of Kyrgyzstan that has only been reversed in the last six years.

ENDNOTES

[1] Stebelsky (1984) indicates the impetus for the Slavic migration into Central Asia in the nineteenth century can be attributable to both "pull" and "push" forces. The "pull" process was a natural migration of a large, unsupportable population of Slavs in the west for new, unclaimed lands and the "push" forces was encouragement by the Czarist authorities for colonization of newly conquered lands.

[2] The Saks are usually considered analogous to the Sythians who dominated the area of present-day Ukraine. Greek authors (Edwards 1996) attribute much of the resistance to the Macedonian conquests of Alexander to Sythian (Sak?) forces.

[3] One of the earliest and longest lived was the city of Navekat, now the Krasnaya Rechka Ruins, 30 km from Bishkek. Arabic maps dating from this period clearly denote the existence of Tokmak as a regional center and the important trade nodes of Yarkand and Kashgar in China.

[4] Burana is located some five miles southwest of present day Tokmak at the entrance to a strategic pass leading into the interior valleys, including Ysyk-Kul, and hence to China.

[5] The city of Balasegun was so impressive that Genghis Khan spared it in his reign of pillage and destruction in a Mongol Campaign of 1218 but the lack of a supporting civilization following the Mongol invasions was sufficient to consign the city and site to ruin. All that is now left is a 75-meter minaret and the remains of the fortress walls some six miles south of the city of Tokmak.

[6] The theme park is a static, symbolic area north of the city and featuring ceremonial grounds, viewing areas, and ornate mythological sculptures. It is not a theme park in the fashion of a North American theme park.

[7] Hatto (1995, Personal communication) indicates that the reference is to an existent epic and thus predates 1792. Prior (1996, personal communication) believes a date of 1700 for the beginning of the epic, not 1000 A.D.

[8] The first written record of the Manas epic was that written by Rotmistr Chokan Chingisovitch Valichanov (1835-1865) in 1856. Valichanov is a figure of which legends are made; the grandson of the last surviving Khan of the Kazak Golden Horde and friend to the exiled Dostoyevsky, Valichanov was an army officer, spy, explorer, historian and in every sense a renaissance man. He recorded the Manas epic from a Kyrgyz bard of the Bugu tribe east of Lake Issyk-Kul when he was there reconnoitering the area as part of General Khomentovsky's incursion into Kokand-held territory. He is immortalized today amongst the Kazaks as a statue in the center of Almaty and on the back of the Kazak 10 tenge note.

[9] Valikanov recorded Bok-Murun, called in his text *Kokotoydun Asi* or *The Memorial feast of Kokotoy-Khan*, from a different bard. It is the epic that has the most geographical references and therefore relevance, because it involves the migration of the son of a Kyrgyz Khan to a memorial feast on the occasion of the death of his father and his machinations to be recognized the new Khan.

[10] Socialist orthodoxy required that during the period of Czarist rule the nomadic Kyrgyz would be constantly fighting empirialism not in equilibrium with it. Moreover socialist doctrine required harmony under socialism not warring tribal groups. The popularity of the Manas epic was such that complete suppression during Soviet times was impossible. Indeed, two Kyrgyz Manaschi, Sagymbay and Sayakbay, became Kyrgyz icons during the Soviet era, and their popularity has not diminished but has increased with independence. However, Hatto (1990) warns that in order to survive, political expediency

may have changed the content of the oral epic during this time-a process not unknown in Czarist rule, or in Western Literature for that matter.

[11] Almost certainly Uzbeks. In contrast the laudatory people of the Manas epic call themselves "Nogay". The term "Kyrgyz" was little used in the epic.

[12] The travels of the great Islamic scholar and traveller Mohammed ibn 'Abadallah Ibn Battuta (1304-1377?) in Central Asia document the extent of the ravages of Gengis Khan. In the process he indicates the geographical extent and dominance of Islam as the religion of choice at this time.

[13] In Kyrgyz the root of the word UULU is "UUL-" or "son", thus reinforcing the patriarchal system.

[14] Literally "White Beard"

[15] The Russians also have a large degree of reverence for their ancestors. However Christian holidays such as Easter and Christmas are their times for visits to the cemeteries.

[16] To offset the cost of the sheep, money is gathered in the village: usually 25 som ($1.50) from close relatives, 10 som (.60 cents) from friends.

[17] Similarly, in much of Russia, superstition and mythology play an important role in the cultural beliefs of the people.

[18] The defeat of the French in Egypt in 1798 and the incursion of Elphinstone in 1808 into Afghanistan was the start of what Rudyard Kipling termed "The Great Game". Treaties between Russia and Great Britain in 1908 ended the game.

CHAPTER 5: THE RUSSIANS, 1862-1924

The Russians gained effective control of the Ysyk-Kul area with the capture of the forts in Pishpek and Tokmak in 1862 (although Kokand was not destroyed until 1877) and almost immediately began to consolidate their hold on the area. A small garrison was built in 1864 in Teplokluchenka just north of a thermal hot spring at Ak-Suu, and in 1869 Karakol, some ten miles west, was founded as a Russian garrison. Pierce (1960 p.107) stressed that following the subjugation of the northern Kyrgyz in the year 1862, and in the interests of military strategy and long term state policy, immediate consolidation by means of colonization by a more representative cross-section of Russian society was required. Thus a flow of the peasant class into the region was encouraged. The impact of these settlers will be described in this chapter. It will be suggested that this period is marked in land use by a multi-ethnic mix, subsistance agriculture, private holdings, the start of permanent village life and distinctive house types. The Russian administrators commenced the settlement process by surveying and mapping their new territory, and these maps, the earliest dating from 1868, were available for consultation and analysis. An additional valuable resource was the first censuses carried out by the Russian colonizers. Some counting was done by the Russian administrators in Vernoe (Almaty) in the eighteen-seventies and eighties[1] but the major source is the "First General Census of the Population of the Russian Empire in 1897." More recently, since 1943, Soviet aerial photography has extensively covered Kyrgyzstan, and these photos may be consulted to provide a time series perspective on historical land-use change.

The Settlement Process

It is uncertain just how much settlement was present before the coming of the Russians. It is generally accepted that the Kyrgyz were still predominantly nomadic, and while no large

settlements were present, the Sarts/Kalmaks[2] who pursued more sedentary agriculture were certainly present in significant numbers.

The settlement process up to 1924 was essentially a three-phase process: The first phase, beginning in the late 1860s, was a process of Slavic settlement that reached its zenith in the years between 1904 and 1914. The second phase was relatively short, with Chinese Moslems or Dungans emigrating into Kyrgyzstan after 1877. The third phase was the settlement of the formerly nomadic Kyrgyz, following the outbreak of war in 1914. The first phase of sedentary settlement in Central Asia, of which those along the shores of Issyk-Kul were a major component, was as dramatic and formative as that what was occurring concurrently in the American west and yet has been little documented. In the case of Semirche Oblast, in which Ysyk-Kul was a large part, it was characterized by a rapid colonization in which an area larger than France was essentially settled in forty years. Furthermore, it was the period that imposed the rural settlement pattern that is seen today in the oblast.

As early as 1870 surveys and plans for 34 villages and 47 advance military outposts along existing lines of communication were made for the district of Semireche. Military and tax exemptions of fifteen years were given to settlers (thirty years at the advanced posts) and each male settler was gives thirty desiatines (twenty seven hectares) of land. This land grant was later reduced to seventeen as thirty desiatines proved to be more than adequate for abundant yields. Von Kaufman, the Governor-general of Semireche from 1867 to 1882, in a report to St. Petersburg in 1882 was able to report that "During the period 1868 and 1880, some 3,690 peasant families had arrived. Of these 1,652 families, numbering 13,074 persons formed 59 new settlements." (Pierce 1960, p.113).

In the case of Ysyk-Kul, the region's proximity to the Chinese border marked it for special treatment, and settlement here was amongst the earliest. It is suggested that the process of settlement was by no means uniform in Ysyk-Kul. Much like other areas the best land was taken first and the more marginal land later. Thus settlers began farming the rich alluvial lowlands first, in the case of Ysyk-Kul this is the area between Pokrovka and Karakol, and then followed in the area between Tyup and Karakol. Finally the alluvial fans around Ananyevo and the drier land in the west were settled and cultivated. The sequence of land use maps (Archive Maps 1-10, Appendix G) depict this process, and statistical evidence from rural populations and the use of building materials can be used to support this thesis.

Colonization of the region was given an additional stimulus in 1884 with the deliberations and the resultant statutes of the Ignat'ev Commission. A member of the commission, General Kurapatkin, stated it would be necessary to "crowd" the Kazaks, especially along post roads and places of strategic importance. Ignat'ev in his written notes to the statute indicated there was a need to hasten Russian colonization before native Muslims took all of the available land.

> "At the present time the region is fully tranquil; the native population understands very well the advantage of such a situation compared with the former and hastens to make use of the favorable conditions for the development of its material welfare, striving to seize for cultivation all lands having any sort of irrigation. Not only Uzbeks and Sarts, accustomed to agriculture, but also the Kirgiz [Kazaks], little inclined toward it, have yielded to the general tendency and have begun to sow a considerable area and to enlarge their area of irrigation. If this continues over several decades, it can easily happen that in Turkestan there will remain hardly a spot free and suitable for Russian settlers which will not be occupied by Muslims"
>
> Ignat'ev 1884 p.95 (quoted in Pierce 1960, p.116)

The statute therefore set out the general rules for Russian settlement within Semireche to achieve the goals set above. Settlement was to be limited to "inhabitants of the empire who were of

Christian faith". This was explained as being necessary "in order to prevent an influx of Tatars and Jews, the first because they would strengthen the Muslim element and consequently would be unsuitable to the aims of the government and the second because of their natural inclinations, which could exert a strong and harmful and corrupting influence on the economic life and morals of the population". (Ignat'ev 1884, p.95 (quoted in Pierce 1960 p.116). To that end the government would provide a church and a school for every settlement over 100 households. An adjustment to the earlier allocation of land was made reducing the amount of land a settler would receive. Allotments for the settlers were now not to exceed three desiatines (2.7 hectares) of irrigated land per person. Tax exemptions were also reduced to five years and unlike earlier Cossacks in northern Semireche, no financial incentives were provided.

Most significantly, settlers were to form "separate rural communities" so that they would be able to develop independently without mixing with the communities of the natives or being under the administrative structures of the natives. The proximity of Russian settlements to contemporaneous or later Kyrgyz settlements is a marked feature of current settlement maps (Map 11 Appendix G) and indicates the impact of the dictates of the Ignat'ev statute on the settlement pattern of Ysyk-Kul.

> Russian settlement will be organized without constraint upon the native population. [This] is considered necessary mainly for the protection of the nomadic population, which because of the extent of the stock-herding needs places for pasture, for gathering hay, and for driving the herds from the winter camps to the summer pastures. This rule in relation to the settled population means that the Russian population can be organized adjacent to the native population, under conditions of leaving the native population that amount of water which it actually needs for the complete irrigation of its fields"
>
> Ignat'ev 1884 p.95 (quoted in Pierce 1960 p.116)

It was implicitly believed that the needs of the nomadic inhabitants could be integrated with those of the settlers as Section 270 of the statute noted that " state lands occupied by nomads will be

permanently for the common use of the nomads in accordance with custom and the laws of this state" Ignat'ev 1884 p.95 (quoted in Pierce 1960, p.116).Thus the region was opened up for greater immigration than had previously been planned. Finally, the resettlement Act of 1889 added further impetus to the movement of peasants emigrating from the Slavic land of Western Russia and Ukraine and, following the disastrous famines of 1890-1891, the flow became a flood. By 1913 Slavic settlement of Central Asia was esssentially complete and of the half a million hectares in Central Asia under cultivation, almost eighty percent was in Semireche and of the acreage in Semireche, thirty percent was already irigated.

Table 5.1: Total area, area under irrigation and cultivation, and population of Turkestan Oblasts 1911 and 1913.

Areas and Population	Syr-Daria	Fergana	Samarkand	Semirechie	Transcaspia	Total
No. of square versts	429,890	125,470	76,940	335,250	525,540	1,493,090
Millions of Desiatines	44.8	13.1	8.0	34.9	54.8	155.6
Desiatines under irrigation	635,000	840,000	480,000	703,000	150,000	2,808,000
Desiatines under cultivation (Jan. 1, 1913)	.....	.....	541,000	2,503,000	.....	3,054,000
Population (Jan. 1, 1911)	1,816,000	2,041,900	960,202	1,201,540	472,500	6,492,692
Russians	103,500	34,200	22,929	204,307	41,671	406,607
Natives	1,713,050	2,007,700	937,273	997,233	430,829	6,086,085

SOURCE: *Aziatskaia Rossia*, Atlas, pls. 34, 35.

Stebelsky (1984) has traced the influx of specifically Ukrainian settlement east of the Urals. He calculates that between 1894 and 1914, the peak of immigration to the new lands, over 5 million settlers came east and over 3.5 million of them remained. Stebelsky points out that

toponyms with the diminutive, feminine ending of *-ka* were commonly used in the 19th century and while these Ukrainian, Russian Cossack, and Russified Ukrainian place-names by no means indicate a particular ethnicity of the inhabitants, the location and density of these names in the Ysyk-Kul region is noteworthy (Map 5.1).

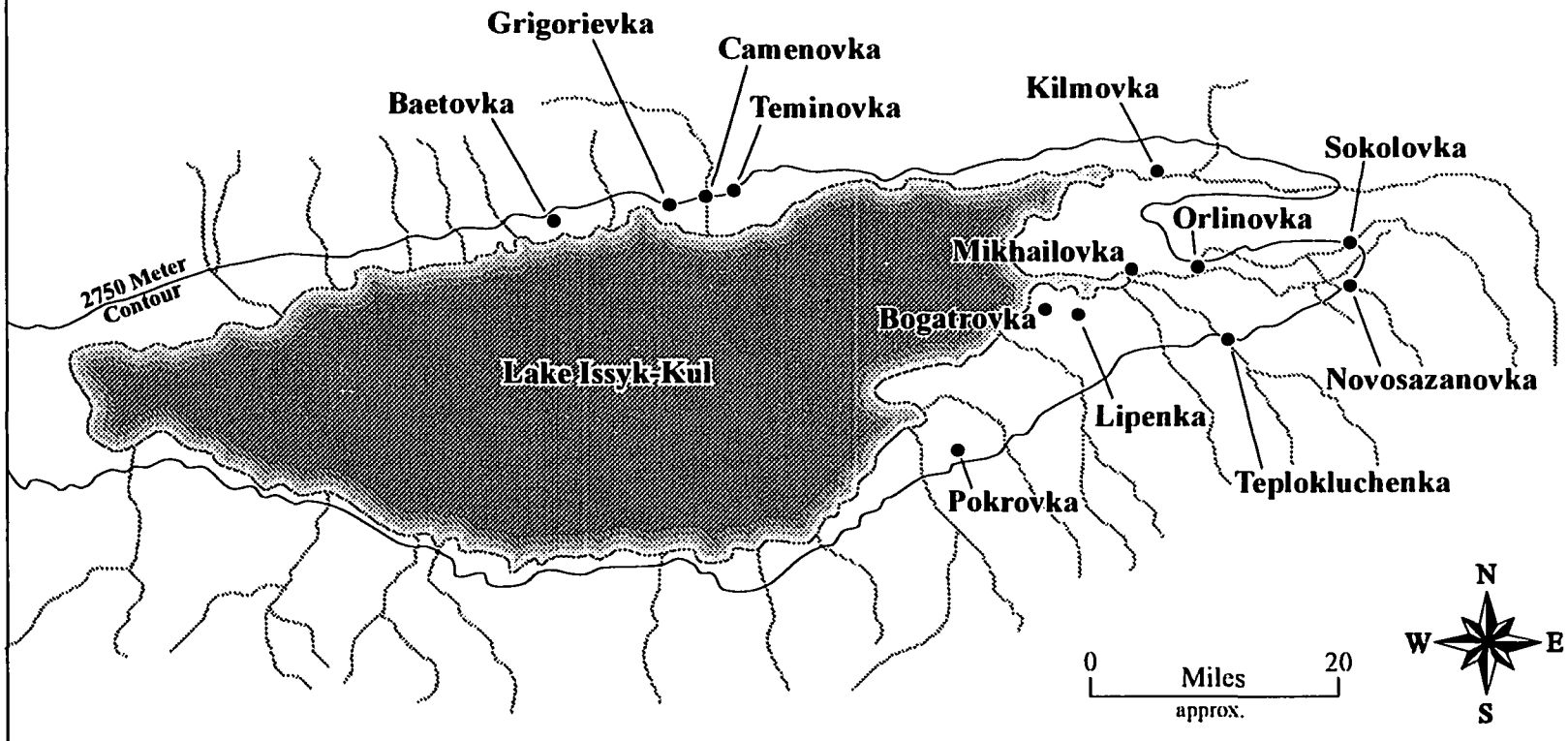
Most of the new settlements choose a site where alluvial fans formed by the watercourses exiting the mountains made the adjacent area inhabitable and cultivable. Moreover, a site too far into the valley would mean there would be a problem with flooding. This explains the almost uniform location of these new Slavic settlements at a height of 2,750 meters.

Concurrently, the Russian authorities drew up plans for new nucleated and orderly settlements [3] in the intermontane basins of the interior. As cities like Karakol (which in 1889 was renamed Prezervalskiyi) [4] and Teplokluchenska were initially garrison towns, they were separated geographically from the resident native settlements and, as a result of the statute noted above, civilian settlements of Slavic origin were also sited adjacent to Kyrgyz settlements (Appendix G Map I I).

The second major influx of people into Ysyk-Kul came in 1877 when Chinese Moslems, or Dungans, rebelled against their Han Chinese overlords in the Chinese provinces of Gansu and Shansi. The revolt was brutally put down by the Chinese authorities, and the result was a large influx of Dungans into Kyrgyzstan. Ethnic Uighurs in Xinchiang Province adjacent to Kyrgyzstan were also affected, and a number of Uighurs also moved across the border at this time and took up residence in the Ysyk-Kul valley. The recently established Russian administrative authorities were required to plan and settle these new immigrants, and soon additional new settlements sprung up[5]. These settlements were reserved exclusively for the Dungans and hence still contain a predominance of Dungan peoples. In Ysyk-Kul, these immigrants were settled in areas just outside

Map 5.1

Ysyk-Kul Oblast - Settlements of Possible Ukrainian Origin



Settlements in Ysyk-Kal oblast ending in the diminutive feminine suffix - ka

Source: After Stebelsky 1984.

existing settlements of Karakol in the villages of Yrduk, Marinsky, and Chelpek.[6]

The final phase in the settlement of the Ysyk-Kul region came in the form of the conversion of the Kyrgyz to sedentary agriculturists. It was apparent that the populating of Kyrgyzstan was well underway by 1914, but the First World War dramatically interrupted the process. Inextricably the country was drawn into a war far away and of little interest to the people. However, the need for food and money was forcing a major contribution from the Kyrgyz. To that end the Russian authorities began to conscript the nomadic Kyrgyz into more intensive and sedentary agricultural practices. Additional villages were created and the pace of converting agricultural land to arable farming was speeded up. In 1916 a call up of non-Russians in the colonies was met with armed insurrection, which was swiftly put down by Russian Czarist troops from Almaty and local vigilantes. Many Kyrgyz fled to China. The advent of the glorious October Revolution of 1917 was initially seen as the end of conscription and freedom from the oppression of the Czar and was welcomed. Many of the Kyrgyz who had fled to China returned when the Chinese authorities refused to assist the Kyrgyz refugees. Later the uprising was seen and promoted as a feature of Kyrgyz nationalism, to the detriment of the resident Russian minority. (For a detailed history of the colonization of Central Asia see Pierce 1960, Wheeler 1964, Krader 1971 and Prior 1994).

Regional Populations

Aitbaev (1958)[7] indicates that in 1870 the settlements named in table 5 were in place. Tyup, Ananyevo and Pokrovka were the largest settlements and Tepolokenskaya, the settlement in closest proximity to Karakol, had only 1900 persons. These settlements were primarily agricultural in their function and small in size.

Table 5.2: Settlements in Ysyk-Kul Oblast 1870

Hamlet	Date of Incorporation	Number of Households	Number of People		
			Male	Female	Total
Preobraghenskoe (now Tyup)	1870	327	1804	1671	3,475
Slivkino (once Pokrovka now Kyzl Suu)	1873	30	1306	1188	2,494
Teploklyenskaya	1870	215	1064	852	1,898
Derges (now Novo- Konstantinovka)	1872	58	247	229	476
Sazanovka (now Ananyevo)	1871	267	1558	1488	3,046
Alexeevka	1872	52	193	194	387

Source: Aitbaev 1958

In 1897 the Russian authorities conducted the first official census of their full empire and the Ysyk-Kul area (*Prezervalsli Uzed*) was enumerated under the Serednaya Aziya or district (essentially modern day Kazakstan) and within Semirechenskaya (present day Almaty) Oblast. Prezervalsli Uzed had 147,517 inhabitants of which 139,409 or 94 percent were rural dwellers. Of the 147,517 inhabitants only 7 percent were not born in the oblast signifying that large-scale in-migration had not yet taken place. (Russian Empire 1897)

The City of Prezervalsk (Karakol) was the major settlement and had 8,100 inhabitants of which one-third were Slavic speakers and two-thirds Turkic speakers. Clearly settlement was becoming denser to the extent that by 1913 the regional population was around 88,000 persons. Kyrgyz were still the majority. Russians, Ukrainians, Byelorussians, Dungans, and Uighurs only constituted 25 percent of the population of the oblast in 1913. It is evident that by 1914 that the Russians were beginning to put their impress on the city. Archive map 3, (Appendix G) indicate the extent of the city of Prezervalsk stretching some ten blocks from the center, and archive map 4 (Appendix G) indicates the Russian administrators had already begun to construct *dacha*'s on the shore of Lake Issyk-Kul.

Table 5.3: Regional Population. Prezervalski Uzed, Semereche Oblast 1913

Volost (or Region)	Male	Female	Total
Turgenskaya	5961	4677	10,640
Ulaholskaya	1911	3795	8,706
Tonskaya	5530	4515	10,045
Kungei-Aksyiskaya	1177	3267	7,444
Toryaigyrskaya	1132	3346	7,478
Kensyiskaya	4196	3274	7,470
West Djeti-Oguzskaya	3828	3234	7,062
Kurmentinskaya	3676	2914	6,590
East- Djeti-Oguzskaya	3633	3107	6,740
Zaukinskaya	5222	2665	6,187
Tyupskaya	3220	2488	5,708
Barskaynskaya	2113	1929	4,334

Source: Aitbaev 1958

The morphology and growth of early Russian settlements

Upon the opening up of the large and generally uninhabited land of the steppes and the intermontane valley of Ysyk-Kul, the Russian settlers began to cultivate the land for arable crops and establish their own cultural impress on the landscape. Appendix G contains a selection of annotated historic maps that illustrate the process and nature of early Russian settlement. However a review of the settlement of Karakol is instructive in observing the changes that occurred in the earliest years of one Russian settlement.

The predominant form of early Russian settlement was a grid pattern, much like the garrison towns in other colonial areas around the world, which were usually designed in this way to quell uprisings more easily. The streets were oriented NW-SE to offer some shelter from the northerly winds that blow in winter months.

The earliest depiction of Karakol is on a map of grazing leases dated 1886. (Map 2, Appendix G). It shows a small town approximately ten blocks long by ten blocks wide. The surrounding agricultural area was dominated by a fragmented field system of arable land with

limited fodder (hay) crops and the land was predominantly clover, short grass (steppe), or steppe-prairie (tallgrass prairie). The census of 1897 of shows a population of 8,108 persons.

By 1912, the borders of the city had expanded by two blocks in all directions. The riverine land running southwest of town had been converted to an extensive channelized and irrigated field system, and the area of cultivated land was extending rapidly in all directions, replacing the rough grazing that had predominated twenty five years earlier. In addition in the eastern valley and in the streams running to the lake, the generally swampy nature of the watercourses and the need for supplementary water for the crops made a program to irrigate those lands necessary.

Dominant in all the settlements established by the Russian authorities was the church. Always centrally located, it occasionally shared religious focus with a mosque, but it was always the dominant feature of the settlement. Also provided were park areas and often a central bakery. The Russian Orthodox Church was destroyed in most settlements during the Soviet era but in Karakol it survived, albeit in a state of near ruin, and today the church is in the process of restoration.

A model for settlement morphology

Appendix G Map 5 is a map of the settlement of Teplokluchenka in 1886. It indicates the essential elements of Russian settlement morphology that survive today. As was noted above the settlement of Karakol was laid out in a grid pattern, as it was a garrison town. In contrast all the other the rural settlements serving the agricultural community were laid out in a linear fashion along the main road. Lots were some thirty feet wide and stretched half the length of the block- the houses on the other part of the block meeting them half way. The common features were church lands, parks and often-communal facilities such as a mill or bakery. The residents were allotted fields, with a plot size rarely exceeding five hectares.

Mortality was very important to both the Kyrgyz and the Russian settlers. In the Slavic towns areas were set aside for Russian Orthodox burial, usually on the outskirts of the settlement. The Kyrgyz and other Muslim ethnic groups would locate their burial places some distance from the existing settlement. Moreover there were often two cemeteries for Moslems, one for leaders of noble birth that was marked by large mausoleums of mud brick and, in close proximity, a burial ground for persons of lesser rank. These burial places are still part of the visual landscape, though in almost all cases settlement expansion has brought them into the urban fabric.

Vernacular Architecture: House types

Russian

Similar to the process of cultural preadaptation so familiar throughout the rest of the world, the new settlers, and especially the administrators, brought with them the house types that they were so familiar in their native China, Turkmenistan, Byelorussia, Ukraine, and Russia. Thus in Russian towns gracious colonial houses were built much like those to be found in Minsk, Nizny Novgorod, and Kiev. Many of these have survived in Tyup and Karakol because these towns were never major administrative centers and thus threatened with ongoing redevelopment. Interestingly many houses exhibit the feature of an ornate, enclosed upstairs balcony, much like those found in Bavaria or Baden Wurttemberg. The question becomes whether these relic features were brought by the new settlers from Russia, where many of their ancestors came to Russia under the urging of the German-born Catherine the Great (1762-96), or whether they are a more recent phenomena brought by Germanic settlers who moved to the far republics during the First and Second World Wars. The age of the colonial houses in Karakol would suggest the former.

Ukrainian

The census of 1926 indicates there were some 10,000 Ukrainian settlers in the Ysyk-Kul region.

Because more of the Ukrainian migrants were farmers than administrators, their houses were more modest. The houses closely resembled the house types they had left in Ukraine and were built with adobe or clay walls with reed or rush roofs. The bottomlands of Ysyk-Kul were particularly good sources for roofing materials. Many of these early houses survive today as storage sheds adjacent to brick houses that were constructed later.

Dungan [8]

The number of Dungan settlers in Ysyk-Kul was not large, never more than 2,000 persons. Their house types are marked by wood-frame construction with carved ornamentation on the wood. The defining feature of Dungan architecture is the construction of a raised floor, under which an oven or stove provides winter heat (Figure 5.1). Because many Dungans settled in Karakol, the one mosque remaining on the north side of town remains a fine example of Chinese architecture. Recently the interior of the mosque was a center of some controversy because in 1995 a visiting architect found an inscription that read "this building is a Buddhist monument."

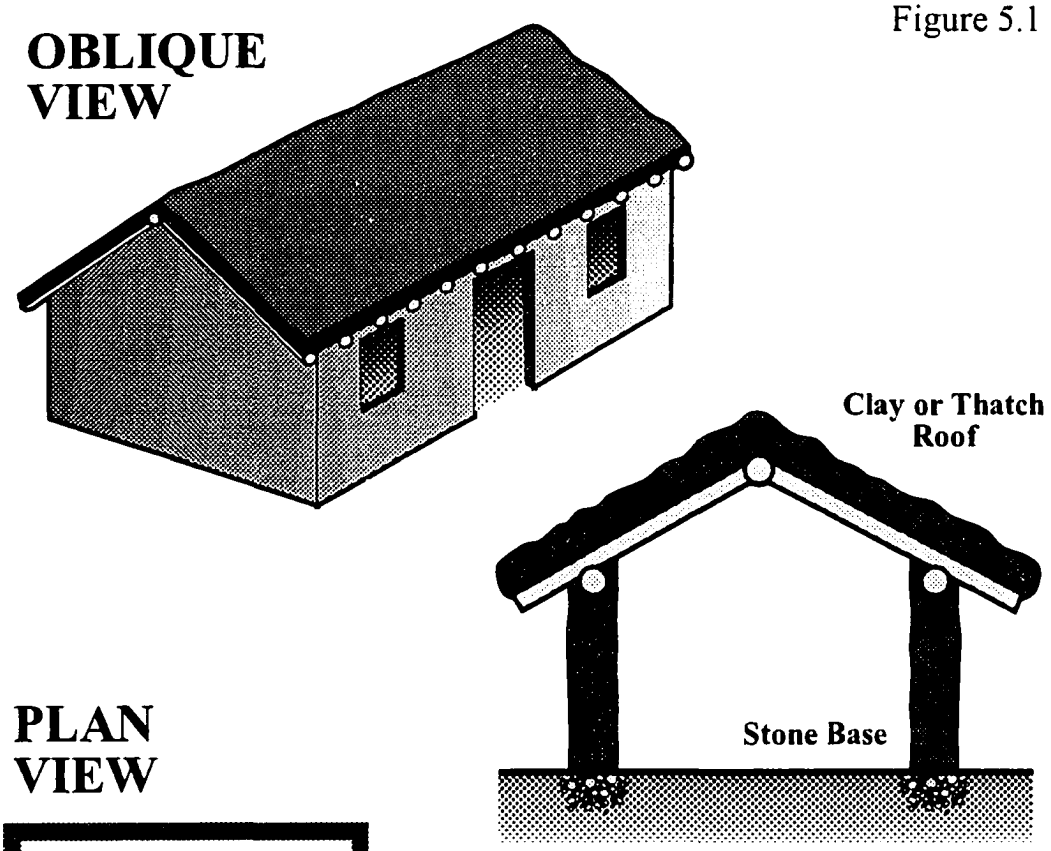
Uzbek

Exclusively Uzbek settlements are less apparent because they have been more integrated, or have been absorbed, by other cultures. Nevertheless the distinctive aivan or terrace can still be seen in houses in Karakol.

Kyrgyz

Settlements that are predominantly Kyrgyz and the houses of these settlements are the most ubiquitous in the region. The fact that most Kyrgyz settlements were planned by the Russians for sedentary living has given rise to nucleated settlements with a grid layout. On the individual lots the

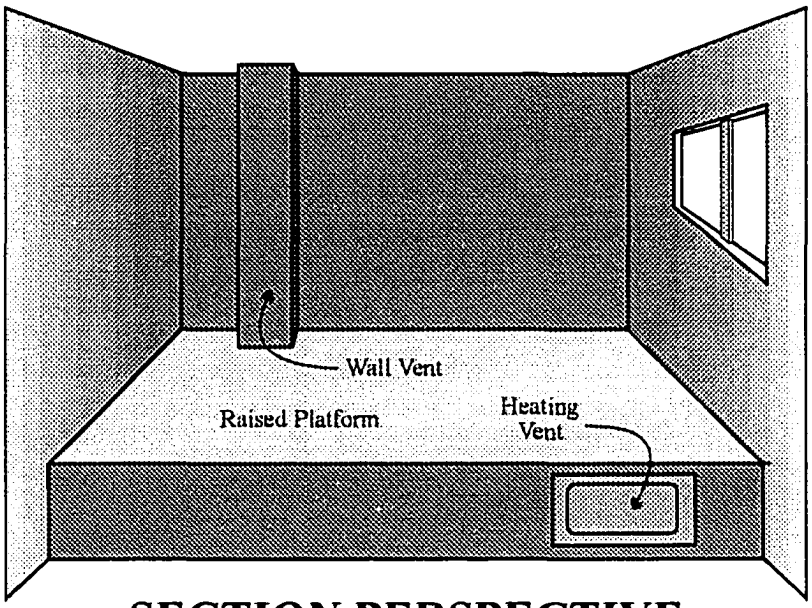
Figure 5.1



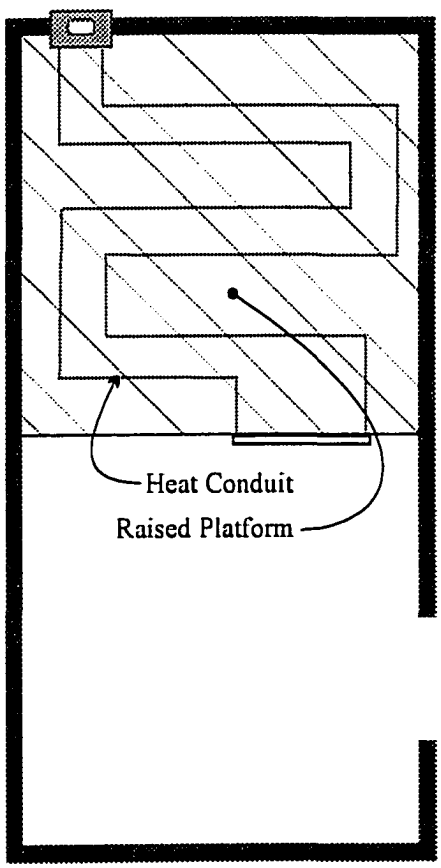
Generalized Kyrgyz House Type

Source: Author research Kyrgyz villages 1995.

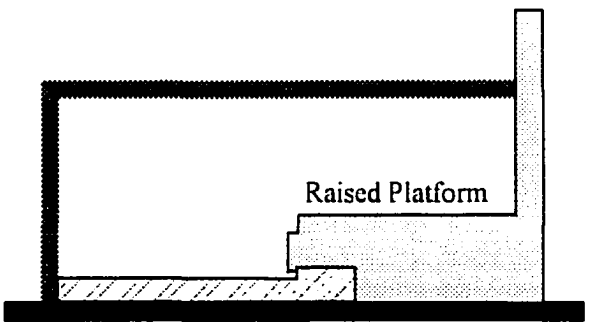
Figure 5.2



SECTION PERSPECTIVE



PLAN VIEW



SECTION VIEW

Generalized Dungan House Type

Source: Author research Village of Yrduk 1996.

house is placed at the front of the lot facing the street with often a central area or courtyard used for the tethering of animals and communal gatherings (Plates one and two and Figure 5.2). As an example in the village of Boz Uchuk the residential part of the lot consumes about 1200 square feet), while the adjoining garden goes back some sixty feet and will contain an outdoor toilet, possibly an orchard and a clay oven (Plate three). Simple, usually one-room, adobe houses with flat roofs and often the yurta outside on a permanent basis characterize Kyrgyz houses. Villages like Darkan, Ak Bulak, and Boz Uchuk are representative examples. Most large settlements were renamed by the Soviets but the smaller settlements kept their names throughout the Soviet period.

Aitbaev (1957) has summarized the state of construction in Ysyk-Kul Oblast in 1913 as follows in Table 5.3. The table indicates the heavy emphasis on clay as a construction material in the area between Pokrovka and Karakol and, to a lesser extent in the Tyup area. This would attest to the large Ukrainian and Russian population having chosen this area for settlement. In contrast the areas around Ananyevo (the Kungei-Aksyiskaya area) and Barskon have relatively few clay houses.

Table 5.4: Construction materials, Ysyk-Kul Oblast 1913

Volost (or Region)	Clay	Wood	Yurts
Turgenskaya	92	8	2,201
Ulaholskaya	235	4	1,957
Tonskaya	361	13	2,033
Kungei-Aksyiskaya	37	7	1,486
Toryaigyrskaya	135	2	1,506
Kensyiskaya	50	34	1,553
West Djeti-Oguzskaya	589	38	1,316
Kurmentinskaya	13	2	1,338
East- Djeti-Oguzskaya	237	17	1,337
Zaukinskaya	200	38	1,179
Tyupskaya	184	9	1,225
Barskaynskaya	24	11	871

Source. Aitbaev 1957

Land Clearance and Land Use 1862-1924

The earliest map of any part of the Ysyk-Kul region is dated 1868 (Appendix G, Map 1). It depicts an area just east of Pokrovka and shows the process of land allocation and clearance already underway. In an 1886 map of Karakol (Appendix G, map2.) approximately 30 percent of the land area has been cleared and put into arable production. In the area just east of Karakol around Teplokluchenka in 1884 land clearance is just underway with approximately 10 percent of the land area divided.(Appendix G, map 6) This percentage is approximately the same some twenty miles north around Tyup. Aitbaev (1957) has indicated that as early as 1870 arable crops were being produced in some quantity. By 1910 land clearance in the area to the east and west of Karakol is 80 percent complete. However on the alluvial fan around Ananyevo clearance is only in its initial phase. In the Tyup area land clearance is 50 percent complete.

Finally, by 1925, maps (not reproduced) of both the Tyup area and around Karakol show land clearance is complete.

Table 5.5: Cultivated land in Ysyk-Kul region 1870.

Regions	Number of People	Sowing and Gathering (in Czzp - Kyrgyz bag of Uniform measure)			
		Millet		Wheat	
		Sowing	Gathering	Sowing	Gathering
1. Kyngei-Alksyiskaya	4,680	9	75	1,668	4554
2. Djyky-Bazskaynskaya	6,418			1,689	7576
3. Turgen-Aksyiskaya	6,794			1,451	19,048
4. Kensyiskaya	7,041			149	758
5. Karol-Saroiskaya	4,999	2	3	889	5443
6. Konurelen-Alabashskaya	7,027	10	82	1,523	9124
7. Toralgyrskaya	3,066			719	3,682

Source. Aitbaev 1957

Field Divisions and systems

The Emancipation Act of 1861 ostensibly freed the serfs from their ties to the land and the nobility or landowners (the *pomeshchiki*) and created a new class of peasant owners (the *obshchiny*). In Central Asia nobility had not previously owned the land and hence the newly emancipated peasants could obtain land without the requirement for purchasing land from the *pomeshchiki.* However the new settlers divided their land on much the same basis as had been used in their region of origin, namely Russia and Ukraine, and hence the pattern of land clearance and field divisions resembled that throughout Russia. The peasants received or delineated individual plots (or *nadely)*, usually elongated in shape to permit horse traction for ploughs and to take advantage of the land contours. In the initial phase of clearance the fields were distinct discreet units and sizes were rarely bigger than five hectares. Archive maps (Appendix G) indicate that the field shapes were varied and located away from the swampy riverine lands on the well-drained uplands. In subsequent phases of land clearance the areas close to the watercourses, lakeshore lands and the dry upland areas were brought under cultivation. Upon privatization some early Russian settlements could recall the distribution of the *nadely* and these formed the basis for land allocation (See Chapter 7).

Livestock

Aitbaev (1958) indicates that in 1870 the population of sheep, horses and cattle significantly outnumber people, testifying to the essentially nomadic pastoral economy of the Ysyk-Kul region. Moreover there was a significant population of camels throughout the region suggesting the need for transportation to summer pastures (Table 5.6)

In the urban settlements, the economy was still very agriculturally based as livestock husbandry was a significant activity and each household had considerable land holdings (averaging 15.74 acres) but the large amount of reserve land suggested that land clearance was by no means

complete.

Table 5.6: Livestock Numbers 1870-71

Regions	Population	Camels	Horse	Cattle	Sheep
1. Kyngei-Alksyiskaya	4,680	562	10,78675	1,303	24,079
2. Djyky-Bazskaynskaya	6,418	619	9,258	2,012	36,864
3. Turgen-Aksyiskaya	6,794	673	1,196	2,589	38,599
4. Kensyiskaya	7,041	717	18,315	2,441	25,240
5. Karol-Saroiskaya	4,999	515	8,685	1,554	27,240
6. Konurelen-Alabashskaya	7,027	891	11,698	2,220	45,703
7. Toralgyrskaya	3,066	417	4,250	893	23,742

Source: Aitbaev 1957

Large houses and gardens were a significant part of the settlement makeup and family sizes were large with an average of 4.25 persons per household.

Irrigation systems

It is suggested that the wildly fluctuating flow of the rivers emerging from the mountains and the ever-present possibility of flooding in the lowlands would make regulation and channelization of the flow of these waters a priority. The first mention of irrigation in the cartographic record is from a map of land-use around Tyup in 1905 ("Rivercourses and Irrigation ditches").

Table 5.7: Land-Use in urban areas, Ysyk-Kul Oblast 1870

Hamlet	Number of Livestock		Cultivated land		House and large garden	Reserve land
	Cows	Poultry and Sheep	Per household	Per person		
Preobraghenskoe (now Tyup)	5,795	2,235	23.5	5.5	150	12,396
Slivkino (now Pokrovka)	8,324	9,161	24.3	6.7	44	8,354
Teploklyenskaya	2,443	3,523	35.5	8.6	100	8,354
Derges (now Novo-Konstantinovka)	1,403	1,093	16.5	4.5	30	1,844
Sazanovka (now Ananyevo)	6,715	6,664	27.9	4.5	171	7,834
Alexeevka	1,364	652	21.1	5.2	30	1,138

Source: Aitbaev 1957. Area in Desyatinas

It may be assumed that along with the clearance of the land came measures to either ameliorate flooding or to use the water to supplement rain-fed crops. By 1913 it was apparent that in order for arable agriculture to succeed irrigation had to be a major feature of farming practices. Thus, according to available data, the grain crop of 1913 was extensively irrigated.

Local History

While land clearance and settlement were major processes during the early years of the 20 th

Table 5.8.Grain Cultivation Ysyk-Kul Oblast by area. 1913

CROP	Irrigated	Unirrigated
Wheat	12,748.58	2,954.14
Rye	22.24	5.10
Barley	18,908.70	4,946.84
	547.23	47.15
Oats	3,774.12	85.85
	24.06	3.00
Other Cereals	516.86	229.05

Source:Tsentral'nyi Statisticheskii Komitet Ezhegodnik Rossi 1912-1914. Area in Desyatinas.

century, it should be noted that the Kyrgyz were not a part of this process. During that time the seasonal movement of herds and people was still the prevailing feature of Kyrgyz life. Indeed in the summer months the Kyrgyz often returned to lowland pastures and dwelt in yurts. Uzak Kutchukov, (Personal interview) now ninety one years of age and living in the village of Sokolovka remembers going to Jailoo in the summer and in the winter migrating to "Sisyrt," a location still within the mountains at some 9,000 feet above sea level.

Visual Landscapes

Uzak Kutchukov (Personal interview) remembers the visual landscape of that time as being a combination of grass on the lowlands and thick tree cover on the mountain slopes. There were few

streets and roads, and what streets and roads did exist in these years, were dirt. At an early stage these roads were lined with poplars and elms for shade and to assist in the soaking up of water during periods of heavy rainfall. Today they are major shaded avenues linking the settlements. The links between villages in the early days were dirt tracks.

Settlement Toponyms

Toponyms are frequently used by geographers to indicate, by use of spatial distributions, the origins or historical characteristics of settlement In the case of Ysyk-Kul an examination of a selection of toponyms indicate the emphasis the Kyrgyz placed on physical characteristic of the landscape or the mystical quality of life. In contrast, the original Russian toponyms or the ones that replaced Kyrgyz place names, are almost exclusively derived from persons or places of origin. In table 5.9 a selection of the toponyms of Ysyk-Kul are presented.

Table 5.9: A selection of Toponyms -Ysyk-Kul oblast

Kyrgyz Toponyms	Russian (Slavic) Settlement Name
KARAKOL ("Black Lake or Black Hands" ")	PREZERVALSKIYI (after Nikolai Prezervalsk)
CHOLPON ATA (" Father of Cholpon-a female name or Venus")	
PREBRAGHENSKOE	
AK-BULAK ("White Stream")	
SAZANOVKA (From "Sasan" or Fish-perch family)	ANANYEVO
CHON-AK-SUU ("Big White River")	GRIGORYEVKA (after Saint Gregory)
KARA-OI ("Black hollow or Gap")	DOLINKA
KICHI-AK-SUU (" Small White River")	SEMIONOVKA
SHALBA-TELEKMAT ("Green Pastures or meadow")	IVANINSKOYE (after Ivan I)
AN OSTEN (" Gap for irrigation canal")	LENENKA
BOKONBAEVO –Named after a distinguished Kyrgyz person	
TAMCHA ("Small house")	BARSKOEN
KEBEK ("Hollow")	TEPLOKLYUCHENKA ("Hot Springs")

DERGES ("Gorge or ravine")	NOVO-KONSTANTINOVKA (personal name Konstantine)
SLIVKINO( ) now KYZYL-SUU ("Red River")	(NOVO)POKROVKA ("Pokrov" personal name or religious holiday)
BOZ BESHEK("Grey baby bed")	NOVOVOZOZNESENOVKA
TYUP ("Bottom" as in foundation)	BELOVODSK
TON (" Sheepskin coat")	ORLINOVKA (From "Oriel" or Eagle)
KUMONTU ("Sacrificed animal")	
BALBAY unknown	
TALDY-SUU ("Divided river")	
TOSOR ("Hunters ambush")	SEMIONOVKA
KEN-SUU ("Wide River")	
CHON-TASH ("Big Stone")	
DZERGALEN ("To stand in a row")	
DARKAN ("Site of Blacksmith")	
DJON BULAK ("Quiet stream")	
AK KOTCHKOR ("Sire ram")	
ICHK BULUN (" Internal gap in mountains")	
AK DEBE ("White hill")	LIPENKA ("July" or "Tree")
AK SHYRAK ("White Lamp")	
ENILCHEK ("Lichen")	
AK TERAK (("White poplar"-or tree in general)	
DJETY OGUZ ("Seven Bulls")	VYSOKOJE
KOI SARY ("Yellow sheep")	

Conclusion

The year 1914 was the turning point for agricultural change and Russian peasant colonization in Kyrgyzstan. Agricultural growth and productivity had reached heights that were not to be again reached until the nineteen fifties, or in some cases the sixties. The revolutionary outbreaks in Russia and the subsequent changes in agricultural policy, particularly under Stolypin had created a

climate for change that was sweeping Eurasia. Indeed it is not unreasonable to suggest that the movements sweeping Eurasia were leading, inexorably, to the kind of agricultural revolution that had occurred in Europe and was at this time being emulated in the United States. It is worth noting that Pierce (1960 p. 156) has suggested that the security of sedentary agriculture as opposed to the vagaries of the climate for nomadism, particularly in the winter, was convincing more and more native people to forgo nomadic living for a more secure existence. Whether the transition to a more intensive, commercial agricultural system along the lines of the West would have evolved is now a mute point, for the outbreak of war in 1914 caused dramatic structural change. In the initial years, the only change in Ysyk-Kul was the raising of taxes and the replacement of Russian farmers by Kyrgyz labor when the Russian went to the front. In addition, food was requisitioned from the Kyrgyz to feed the troops. On June 25,1916 a decree drafting non-Russians into the army owing to the urgent need for replacement troop was issued by Moscow and proclaimed in Semireche on July 8. By August the native Kyrgyz were in uproar. Some were fleeing to China to avoid the draft, and in the process the Russians confiscated their land and possessions. Kyrgyz reprisals quickly followed, and as the linear nature of the villages made them indefensible the Russian colonists fled to Prezervalsk. By August 9 the entire north shore was in Kyrgyz hands and the Russians were confined to Prezervalsk. On August 15 a detachment of Russian troops arrived from the east and over the next two weeks the arrival of more Cossacks and volunteers made the Kyrgyz resistance hopeless. Order had been restored by the end of August, but not without a dramatic change in the numbers and outlook of the inhabitants. Pierce (1960.p.293) indicates over 42,000 Northern Kyrgyz were killed or fled to China but others put the number considerably higher. Further insurrection was halted by the resignation of the Tsar in February 1917. The Kyrgyz and the Russians welcomed this event, for it brought the potential for change throughout the Empire. As

will be seen in the next chapter, the changes were neither beneficent nor did they dramatically improve prevailing conditions.

ENDNOTES

[1] The Ysyk-Kul area was under the governorship of a resident Russian governor based in Vernoe now the city of Almaty. The Governor-General in 1870 was Adj.Gen. K.P. Von Kaufman. The oblast to which the Ysyk-Kul area belonged was called Semireche and the Uzed or district named after the principal city Karakol.

[2] There exists some confusion over the differing ethnicity of Sarts, Uzbeks and Kalmaks. Sart or Sarts is a derogatory term used by the Kyrgyz to describe sedentary agriculturalists. These may be Uzbeks or Kalmaks. The reasons for their disdain are primarily religious and cultural. Kalmaks are generally regarded as West Mongol peoples who migrated to Ysyk-Kul from present-day Mongolia after the Dungan rebellion of 1874-77 while Uzbeks are migrants from the Fergana valley who intermixed and intermarried with Ysyk-Kul residents. The term Kalmak will be used in the text, but the reader should note that the term "Sart" is often used in official documents and particularly the Manas epic as synonymous with Kalmak or Uzbek.

[3] The main areas for Slavic Settlement were the main transportation links that linked the major cities (Almaty with Tashkent and Tashkent with China) thus in Chui Oblast there were established settlements with Russian names like Panfilovka, Shopkov, and Przhevalskiyi.

[4] As was noted earlier, the late nineteenth century was a period of extensive Russian exploration into the Northern Tien Shan. The contribution of people such as Tien Shansky and Valihanov has been noted. They were followed by others such as Prezervalsk (who also explored large tracts of Siberia, Xinjiang and Tibet 1860-1880) and toward the turn of the century a number of Germans most notable of whom was Gottfried Merzbacher (1903) after whom the Mezerbacher glacier in interior Ysyk-Kul was named.

[5] The earliest settlements were along the main Tashkent-Almaty (Vernoe) road. These settlements were shortly followed by those in the interior.

[6] Maps of the latter two settlements and the Ysyk-Kul encyclopedia categorically note that these settlements were planned for, or contain, Dungans. However, local residents of Karakol are insistent that these two villages are Kalmak villages. Conversely, Yrduk is considered Dungan by all residents. However, the author interviewed two long-time residents who were Uighur, testifying to the intermixture of ethnic groups throughout the historic period.

[7] Aitbaev (1957) does not indicate the source of his data. Certainly there was no census before 1897. Many of the town plans made by the Russians for settlement indicate population of the town but none were found earlier than the last two decades of the nineteenth century. Thus his information must remain suspect.

[8] The Ysyk-Kul encyclopedia indicates that in the region the typical Islamic house type, represented by the enclosed house surrounding a central courtyard in which a water feature is present, may also be found. The author could find no trace of such a house type, nor did any local historians or architects know of such a form.

CHAPTER 6: THE SOVIET YEARS, 1918-1991

The Revolution of October 1917 in Russia and its emulation by the Bolsheviks in Bishkek on January 1, 1918, did not usher in a period of peace or prosperity. Civil war reigned throughout Central Asia as the pan-Turkic Basmachi movement sought to establish a Turkic nation, the white Russian troops fought for the restoration of the imperial political system, and the great powers of Britain and France surrounded Central Asia and infiltrated the area with agents and provocateurs. (Nazaroff, 1920). The response by the Bolsheviks was to requisition food and material to solidify the Revolution at the core by imposing military control over the peripheral areas.[1] Ethnic Kyrgyz were required to work on the Russian peasant farms, and this required an abandonment of their nomadic ways and the adoption of a more sedentary existence. Once the sedentary life was adopted, settlement took the form of collective farms and centralized control. This period was also marked by growth in the urban centers, paving of the roads and distinctive urban design in houses and settlement form. Accompanying these changes was the sweeping away of cultural traditions and a restructuring of the farming practices that up to this time had a tribal, subsistence basis and that must now be oriented to fit a centralized Soviet economy. This required the transition from a localized subsistence economy to an integrated, commercial system of agriculture. It is this restructuring and its effect on land use and the landscape that will concern us in chapter six. Within this period there are four major eras that mark change. The first was the dramatic collectivization program under Stalin that dramatically replaced the agrarian system of the Old Russian Empire. The second was the short but dramatic changes wrought by Kruschev. The third was the Brezhnev years in which agricultural yields and productivity increased by not commensurate with the needs of the Soviet Union. Finally the stagnation and decline in the eighties made the situation

ripe for collapse at the core.

Lenin and the integration of Kyrgyzstan into the Soviet Union

In 1918, the first collective in Ysyk-Kul was formed in the village of Darken, just west of Pokrovka. However, due to the ongoing civil war in the region in 1919, the return of refugees from the insurrection of 1916, and the fighting throughout Central Asia, it was not until 1921 that the first Soviet organizations had significant impact on the rural organization and the economy. Even so, resistance persisted and collectivization in 1921 was still a debatable issue.[2] Initially, in the years 1921-24, the government of Lenin encouraged the so-called TOZ (*Tovarichestvo po sovmestnoi obrabotke zemli)* or "Partnership on joint development of Land," which was a collective of two or three families grouping their assets to farm a private piece of property. This agrarian structure had evolved by 1927-28 into the Selkhozartel or "Unity of the People," in which families might share a horse or piece of land that was treated as private property. This system came to an end in November 1929 with the initial collectivization decree of Stalin.

Thus, in 1921 there were only twenty-four collective farms in the Karakol region. Land tenure and water rights were first addressed in 1921 with dictates issued to twenty villages on the redistribution of land.

Stalin, Collectivization and the resultant settlement pattern 1924-1941

With the death of Lenin in 1924 came consolidation of power by Stalin and the accelerated introduction of Soviet principals of organization.[3] Rural land-use change began with teams of researchers and administrators surveying the landscape and the existing methods of agrarian organization to reorganize on a Soviet or centrally planned basis. The other major input guiding the process of reorganization was the census of 1926. With the results of the census and survey, the resultant first five-year plan (1928-32) set the philosophy for the reorganization and the

collectivization decree of November 1929 that set policy regarding collectivization.

January 5, 1930, was the official start of forced mass collectivization in the Soviet Union, which by law was to be complete by 1933. Much has been written about the effects of this process.[4] Many Kyrgyz still remember the mass starvation that accompanied the collectivization (Kojobekova and Kuchukov, personal interviews) and the social disruption caused by the removal of the so-called Kulaks to Ukraine and Siberia, with a minute number being allowed to return in 1936 when collectivization was essentially complete. In the Ysyk-Kul region, the first year (1928) of what was to become three series of five-year plans before the war saw collective farms increase from 24 to 58, and by April 1930, 46 percent of the holdings were collectivized with 55,055 hectares of arable land and 23,774 head of cattle. By contrast, in 1931 there were still 114 private farmers (or "kulaks") in the Ysyk-Kul region, the majority of these to the east of Lake Ysyk-Kul. Stalin's decree of 1934 abolishing private ownership of land (the so-called "Kulak" and "Baiman" bourgeois classes of the communists) saw the completion of collectivization in the region. Thus, in January 1935 there were 197 collective farms, or kolkhoz, in the Ysyk-Kul region (Kareschkulov 1995). The manifestation of this policy on the ground was that the existing Russian settlements and the semi permanent winter camps of the Kyrgyz were made the center of the communal farms, and the livestock, previously owned by large familial groups, became common property. The "Regional Committee of Settlers" guided settlement, established in 1931 and charged with settling the nomadic Kyrgyz in nucleated settlements. Under this policy 11,400 Kyrgyz were placed in permanent settlements in Ysyk-Kul. This radical change from a dispersed nomadic existence to a concentrated settlement pattern was particularly destructive to the livestock herding economy that was so much a part of Kyrgyz organization. It was replaced by a greater concentration of arable farming, and any livestock herding was within the confines of the local area. This dictum of

communal ownership of farm animals was resisted most. Rather than let their herds become common property, the Kyrgyz embarked on a massive program of killing their livestock.[5] Thus, cattle and sheep numbers fell significantly in the thirties both as a result of resistance to change and due to the sacrificing of available pastures in order to further arable agriculture. The other significant changes in agriculture were the introduction of crop varieties and technology into the rural agriculture system. Agricultural Institutes were established and dedicated breeding programs for sheep and cattle, in particular, were commenced.

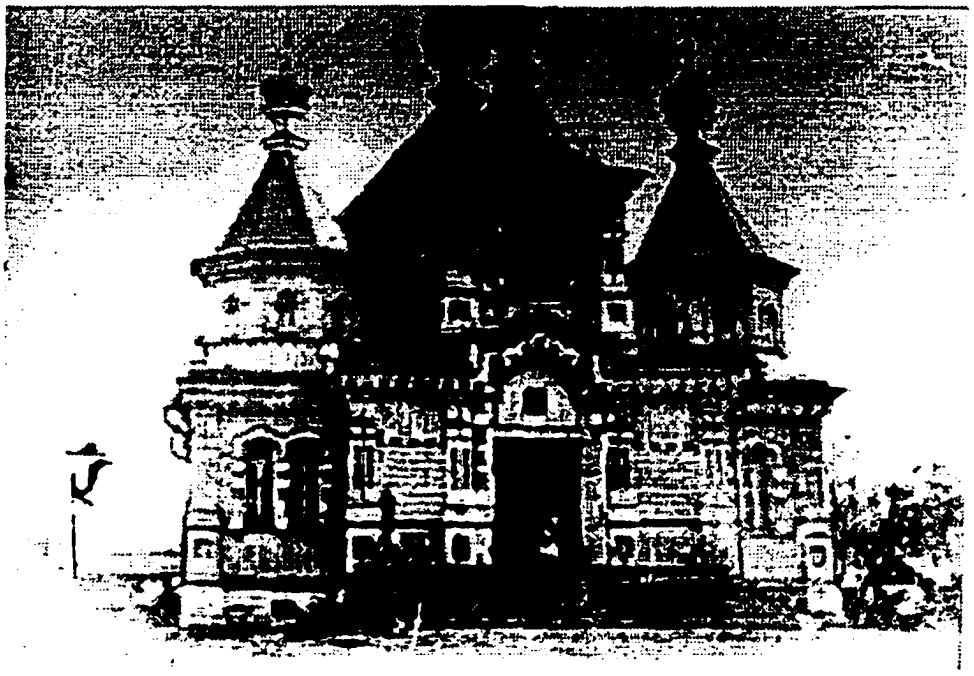
In political circles, Kyrgyz tribal leaders were recruited into top positions to form the basis for regional government. Thus, there was a large rural to urban migration at this time that was very tribal in nature. This tribal division survived the Soviet system and continued into the privatization era.

While the major impact of Stalin's policies were on the collectivization of the rural land base, the policies also impacted populated areas. In Karakol, prior to the revolution, there had been nine mosques administering to the local Muslim population and the Holy Trinity Cathedral for Russian Orthodox Christians. In the 1930's, the Soviet authorities destroyed all but one Dungan mosque, removed the domes of the Russian Orthodox Cathedral (Plate 6.1), and converted the church to a sports club.[6]

In a more positive light the Soviets saw their role as providing for the social and economic welfare of the local population. To this end the thirties saw growth in schools, hospitals, and industrial projects to advance the welfare of local inhabitants. Prior to 1917, schooling had been confined to Islamic schools and Russian colleges. In 1928, in the first five-year plan, schools increased in Ysyk-Kul from 128 to 173. (Kareschkulov, 1995). Medical services were considerably slower in coming. Most facilities were located in the larger towns, while the Santeria were

considered the location of primary medical care. There were no maternity beds until 1935,

Plate 6.1 Russian Orthodox Church, Karakol 1894



Source: Author Photograph of image in church entrance

and mobile medical units provided rural health services. In 1941 there were 11 medical units with 96 doctors and 560 beds for 170,000 residents (Kareschkulov, 1995). Industrial growth in the thirties concentrated on construction materials (sawmills were built in Ak- Suu, Turgen, Dzhergalen, and Jargilchek), infrastructure building (shipyards at Karakol and Balakchy) and agricultural processing plants (creameries, fish processing plants, and a vodka distillery).

The Great Patriotic War 1941-45

The invasion of Russia in June 1941 by the forces of the German Third Reich placed the Central Asian republics in a strategically advantageous position. Up to this time most of the Soviet Union's

industry had been located in European Russia. The invasion forced the evacuation of whole industrial plants to those regions where they were removed from the threat of Axis capture or bombing, thus Balakchy and Karakol began to experience industrial growth. The Ysyk-Kul Sanateria were converted to convalescent facilities for injured soldiers, and in order to feed the Russian armies, the war years saw the first sustained growth in agricultural productivity since the revolution. In the immediate post- war years, Stalin saw the strategic wisdom of continuing to disperse industry and the extension of this dispersion policy in peacetime created interrepublic trade and interrepublic dependency, a policy that continued until 1991.

The Kruschev Years, 1953-1964

Nikita Kruschev instigated the most dramatic changes in agrarian structure since collectivization. His legacy was to impact Kyrgyzstan in three main areas. Firstly in 1954 he announced his virgin lands policy in which large areas of formerly uncultivated land would be brought into cultivation in order to increase Soviet agricultural output. The policy had its most striking ramifications in the cotton-growing areas of Uzbekistan and the grain areas of Kazakstan, but Kyrgyzstan was not unaffected. In Ysyk-Kul the area under cultivation (particularly for grain) increased by movement of cultivation up the mountainside and by opening up areas such as the Sukhoy Krebet ("dry lands") north of Karakol for agriculture.

Secondly, following a plenum of the Supreme Soviet in August 1953, procurement prices for a wide range of agricultural products were dramatically raised to make the kolkhoz and sovkhoz economically viable. The effect of this five-fold increase in prices to the farmer was dramatic but they were not enough to offset the bankruptcy of many of the agricultural collectives. As a result, in the years that followed, many of the existing communal and state farms were amalgamated and enlarged in an attempt to gain profitability through greater economies of scale in

administration and operation. Thus, a single kolkhoz that was formerly a village would now be combined with two others to form a larger, presumably more efficient unit. This unit had to be taken over by the State and hence became a sovkhoz. Thus the fifties saw the large-scale growth of the sovkhoz or state farm. It was also planned to serve as an efficient model for the kolkhoz to emulate and in the process provide greater state control and, by default, greater productivity over existing smaller units. It was from this period that state farms in Ysyk-Kul began to experiment with such crops as soy and sugar beets.

Table 6.1: Workers in Agriculture on types of Soviet Farms 1950-1987

Kyrgyzstan	1950	1960	1970	1975	1980	1985	1987
All Farms (Av. Yearly number in thousands)	303	282	331	347	370	426	410
% on Kolkhoz	90	75	65	59	49	46	46

Source: USSR Gosudarstvennyy Komitet po statistike 1988 f'Trud v SSR Statisticheskiy Sbornik Moscow: Finansy i statistika.

The result of this policy was that formerly small villages representing one kolkhoz were amalgamated with usually two or three others thus doubling or tripling their size. For example the five villages of Chalba, Monduz, Ak-Deba, Ak Shirak and An Osten were amalgamated in 1953.[7]

Thirdly, Kruschev also attempted to provide for more "democratization" of production at the farm level. He encouraged workers to organize themselves to attain the yields required, and to do that he devolved decision making down to the rayon level to a large extent. One facet of this program was the abolition of the Machine Tractor Stations (MTS). Originally set up to centralize the provision of mechanical services to a group of collectives that by themselves could not afford mechanization, the abolition of the MTS was meant to provide self-sufficiency for the kolkhoz and money for the state. The result of this freeing of the system was quickly realized when yields plunged dramatically and grain had to be purchased from abroad for the first time and directly led

to Kruschev's ouster in 1964.

The Kosygin years

Often overlooked owing to the longevity and recency of the Breznhev years, the five-year period under the chairmanship of Alexei Kosygin was marked by the best years ever in the yield and productivity of agriculture in the Soviet Union. The reason for this change was the 1966-71 five-year plan that was remarkable for the flexibility it showed. Each kolkhoz was assigned production targets that were realistic and, most important, unchanging within the period. Any excess above the plan could be sold on the "open market." The results were yields and productivity that far outstripped anything previously posted.[8] In particular, the numbers of sheep increased three-fold and cattle numbers doubled. In crops, wheat yields increased, and the areas under sugar beet and potato cultivation increased considerably.

Stagnation under Leonid Brezhnev

In 1970, Kosygin was ousted and replaced by Leonid Brezhnev. The five-year plan commencing in 1971 was adjusted to reflect the new production levels and to post increases above those levels. The subsequent demands of the five-year plans were such that in livestock the natural carrying capacity of the pastures was exceeded, necessitating application of fertilizers. In other sectors such as poultry, grain had to be imported to meet the demands for proteins. The Kyrgyz remember these years as a time when the rural areas were a highly valued contributor to the Soviet economy and all inputs needed to reach production levels were available and plentiful. However, by the eighties the economy in central Asia was stagnating, much like the rest of the Soviet Union.[9] For example, in sheep husbandry summer pastures were becoming degraded, and because fertilizer was difficult to apply, crop yields were falling as a result of nutrient exhaustion and because the infrastructure was beginning to break down. The coming of *glasnost* and *peristroika* in 1985 did little to change

remote and hard-line Kyrgyzstan, and it took change at the Soviet core in 1990 to begin the process of political and economic change that lead to Kyrgyz independence in August 1991. In the context of rural change Medvedev (1987 p.321) believes that the most significant public policy measure undertaken by the Brezhnev administration was the change granting of internal passports to rural residents between 1976 and 1980. Up to that time young people had been reluctant to stay on the collective as such a registration at school leaving condemned the person to a life without internal travel. The result had been to keep farm populations older.

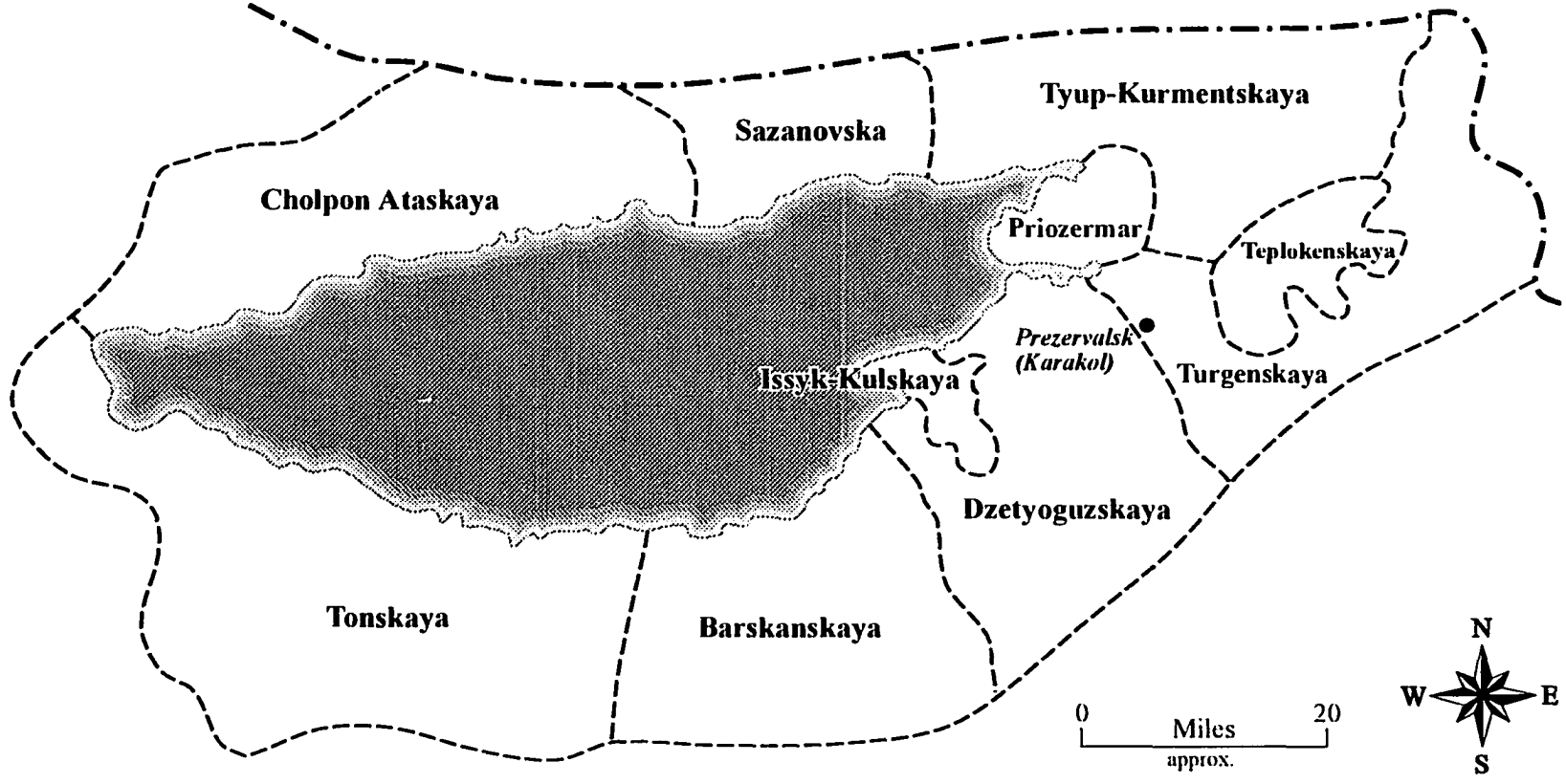
Farm Populations 1921-1989

In 1926 at the beginning of the Soviet period Ysyk-Kul Oblast (Karakol Canton see Map 6.1) was still very rural. The population of Karakol was 13,366, up from 8,108 in 1897. There were five urban settlements with between 2,000 and 5,000 persons (constituting a population of 15,688 persons); fourteen settlements with between 1,000 persons and 2,000 people (with a total population of 19,731), and there were thirty-six settlements (with 23,638 total persons) under 1,000 persons in size. (Union of Soviet Socialist Republics, 1926).

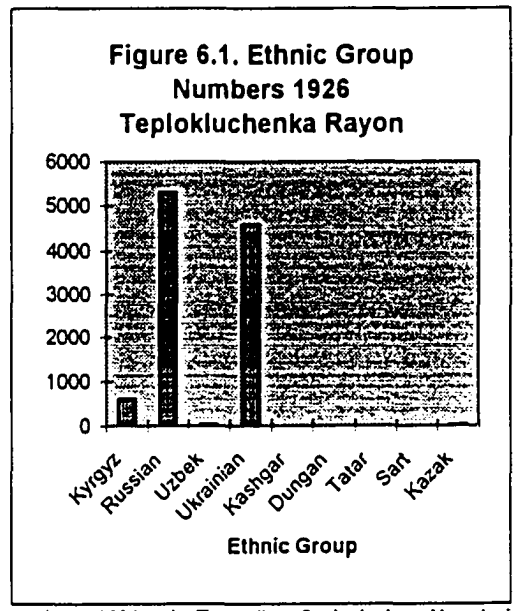
The most interesting finding from the 1926 census is the spatial distribution of the various ethnic groups that over the previous fifty years had populated Ysyk-Kul Oblast. The following charts indicate the spatially distinct distribution of the ethnic groups of Ysyk-Kul in 1926 by Rayon. The most striking feature is the concentration of Russians (48 percent), Uzbeks (12 percent), and Ukrainians (7.8 percent) in the city of Karakol and the almost total absence of Kyrgyz. This pattern is repeated in Teplokluchenka Rayon with 50 percent Russian, 43 percent Ukrainian and only 5 percent Kyrgyz and Issyk-Kul Rayon with 81 percent Russian, 14 percent Ukrainian and only 0.65 percent Kyrgyz.

Map 6.1

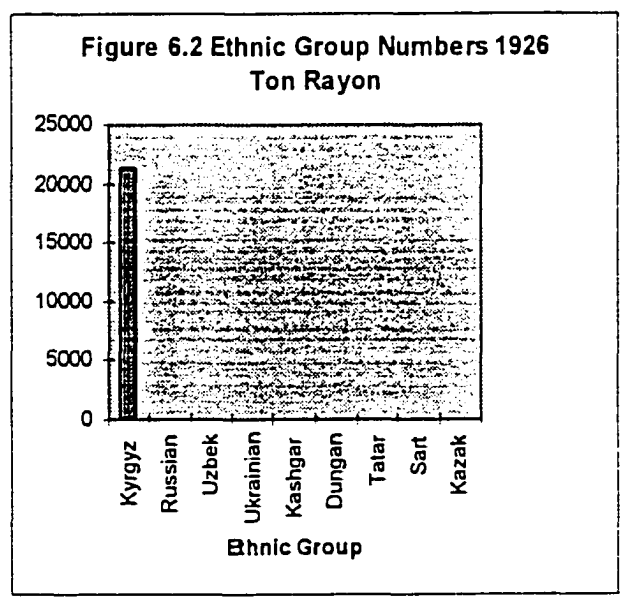
Volosts in Karakol Canton 1926



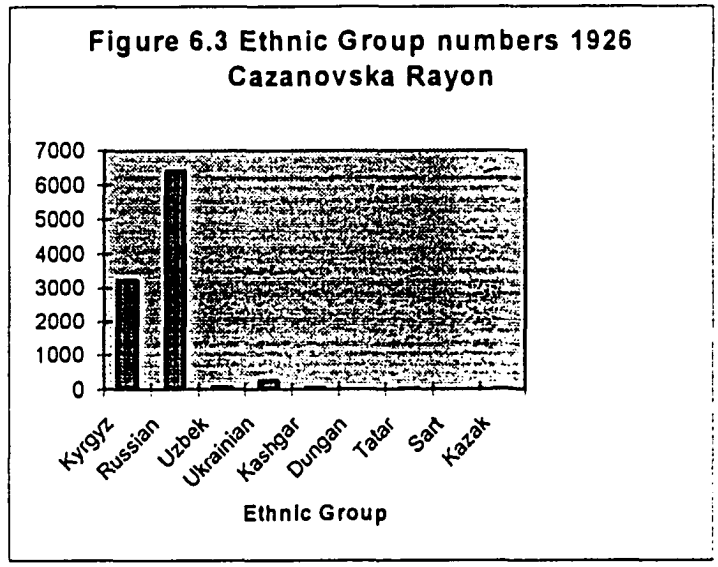
Source: 1926 Soviet census. Frontispiece.



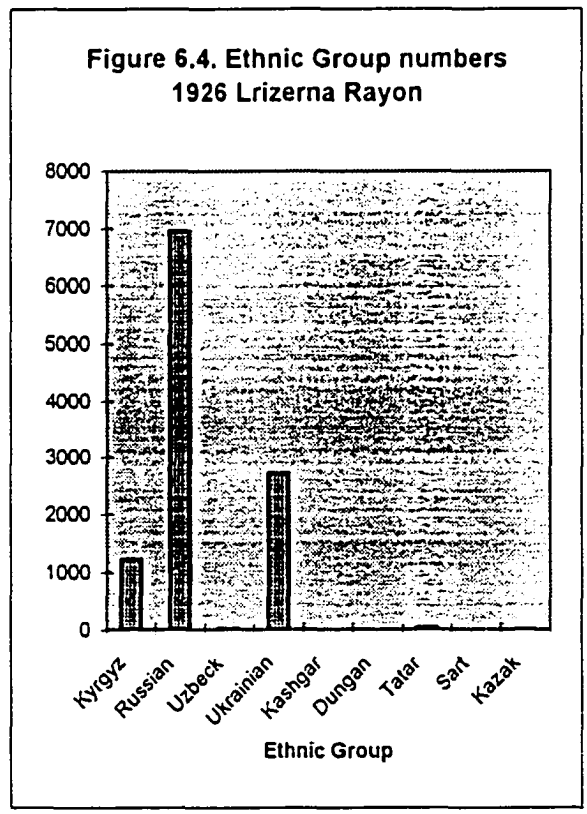
Source: USSR *Vsesoiuznaia perepis naselenia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)



Source: USSR *Vsesoiuznaia perepis naselenia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)



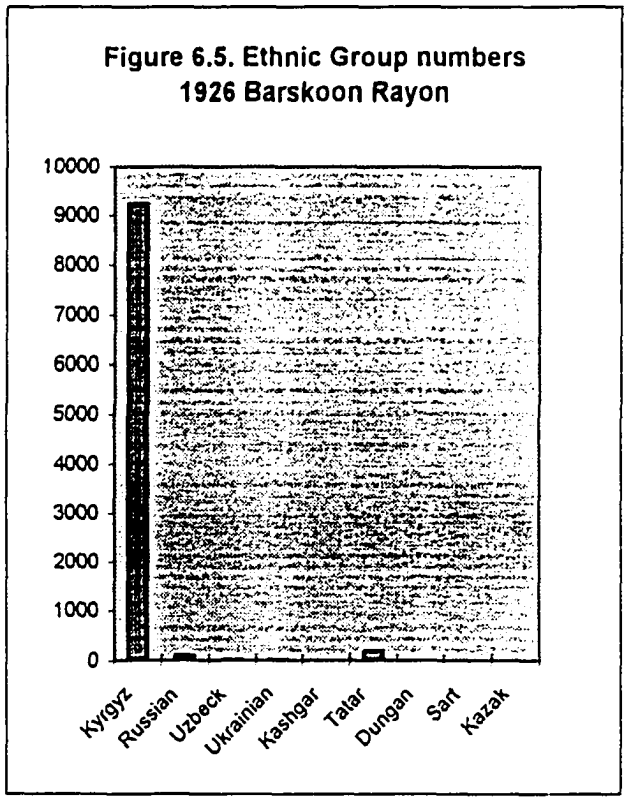
Source: USSR *Vsesoiuznaia perepis naseleniia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)



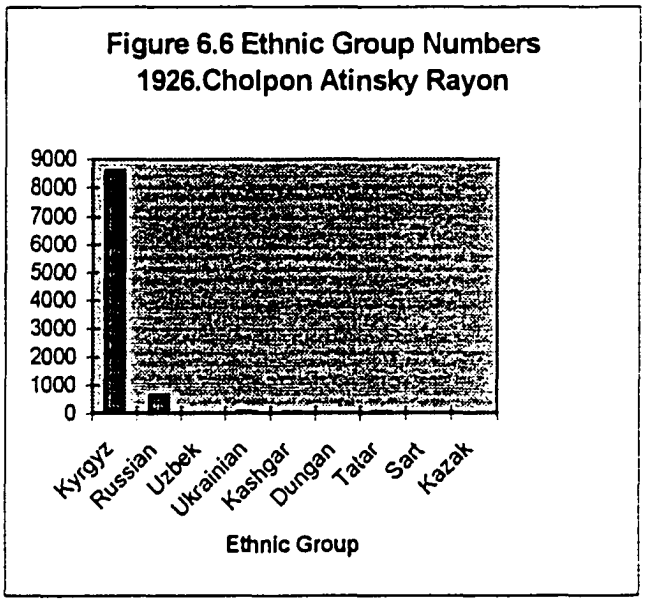
Source: USSR *Vsesoiuznaia perepis naseleniia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)

The Slavic settlers had also colonized the large alluvial fan on the north shore around the settlements of Grigorievka, Cazanovska and Ananyevo. Finally, Russians and particularly Ukrainians, had heavily populated Lrizerna Rayon between Tyup and Karakol.

In contrast, the more southern rayons of Tonskaya, Turgenskaya, Djeti Oguz, and Barskon, and the western rayon of Cholpon Ata, all with limited potential for arable farming, were heavily populated by Kyrgyz (98 percent, 95 percent, 71 percent, 95 percent and 83 percent respectively).

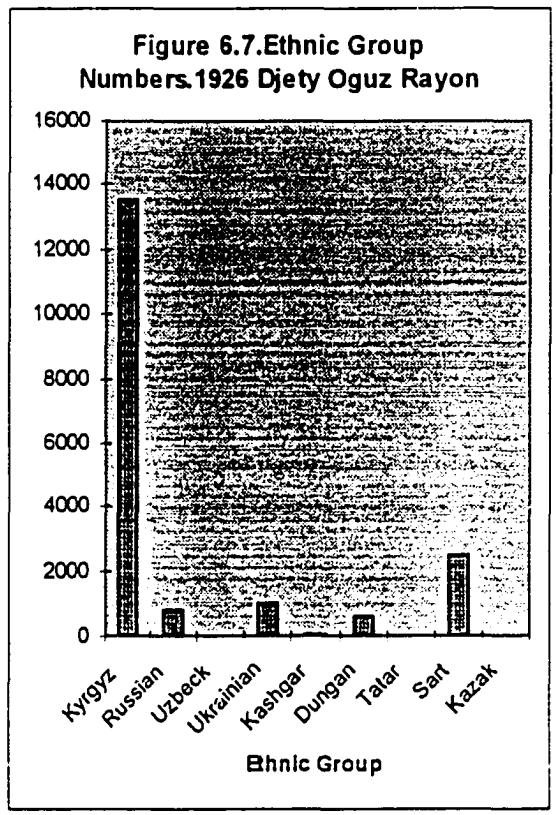


Source: USSR *Vsesoiuznaia perepis naseleniia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)



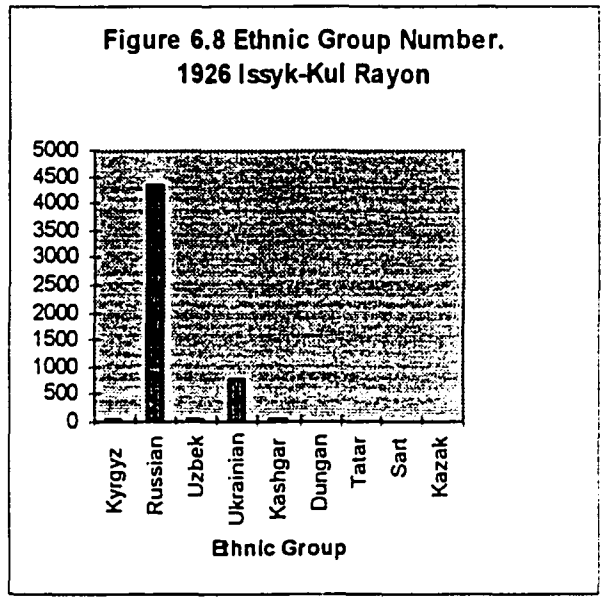
Source: USSR *Vsesoiuznaia perepis naselenia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)

Djeti Oguz Rayon exhibits an interesting ethnic makeup in 1926, for it is the only rayon in which Sarts are a significant minority, indeed they outnumber Russians and Ukrainians. Dungans also have a significant presence in Djeti Oguz reflecting the settlements at Marinsky and Er Dik. It might be hypothesized that in the period of large Slavic settlement around the turn of the century, the area around Djeti Oguz had already been cleared and extensively settled by Sarts, Kalmaks and Dungans and hence the lesser numbers of Slavs are registered in 1926. Evidence from historic land use maps would suggest that this area was one of the earliest settled areas of Ysyk-Kul (Appendix G)

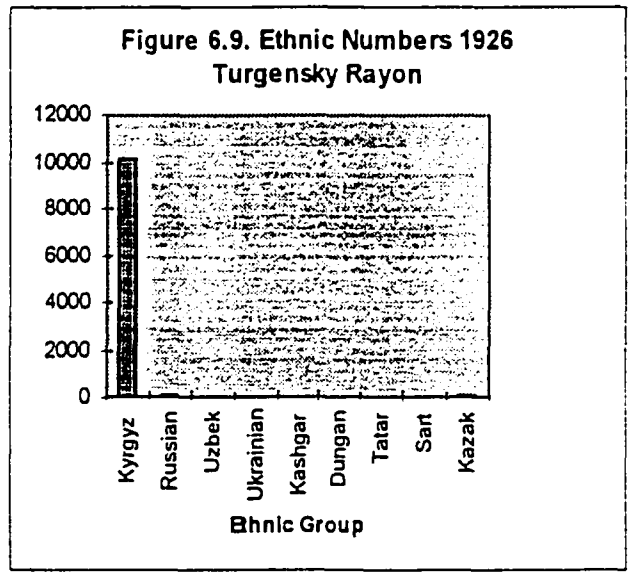


Source: USSR *Vsesoiuznaia perepis naselenia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)

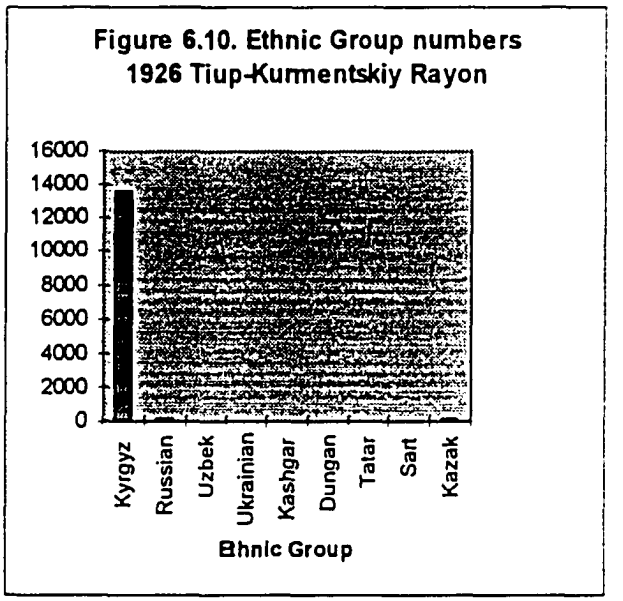
The spatial distribution of ethnic groups in Ysyk-Kul in 1926 was therefore one of concentration of ethnic groups in different rayons. Russian tended to concentrate in the arable piedmont fringes of Teplokluchenka and Lrizema and the alluvial fan around Cazanovska. Similarly, the distribution of Ukrainians reflects the evolution of the settlement pattern suggested by Stebelsky. Teplokluchenskaya Rayon and Priozernar Rayon, with 43 percent and 25 percent respectively, are also the locations with the predominance of place-names ending with *-ka*. Kyrgyz, in contrast, were confined to the mountainous rayons of the west and south where extensive grazing land was desired and available.



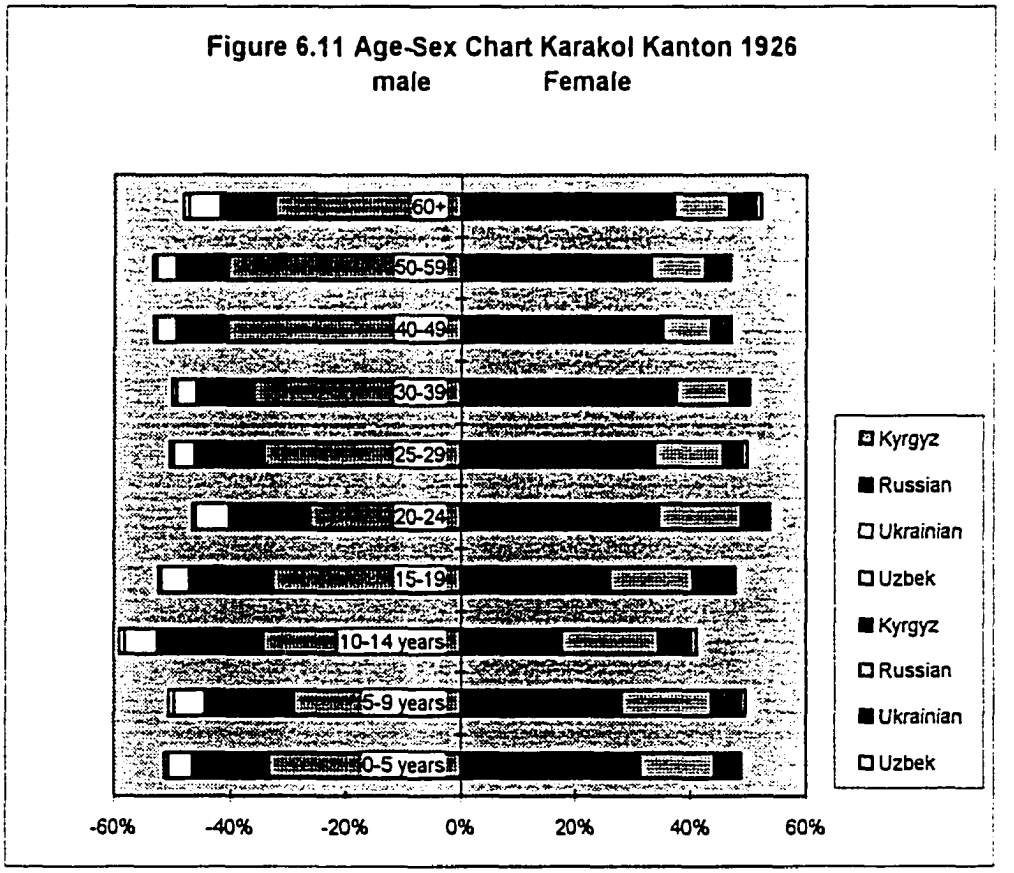
Source: USSR *Vsesoiuznaia perepis naselenia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)



Source: USSR *Vsesoiuznaia perepis naselenia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)



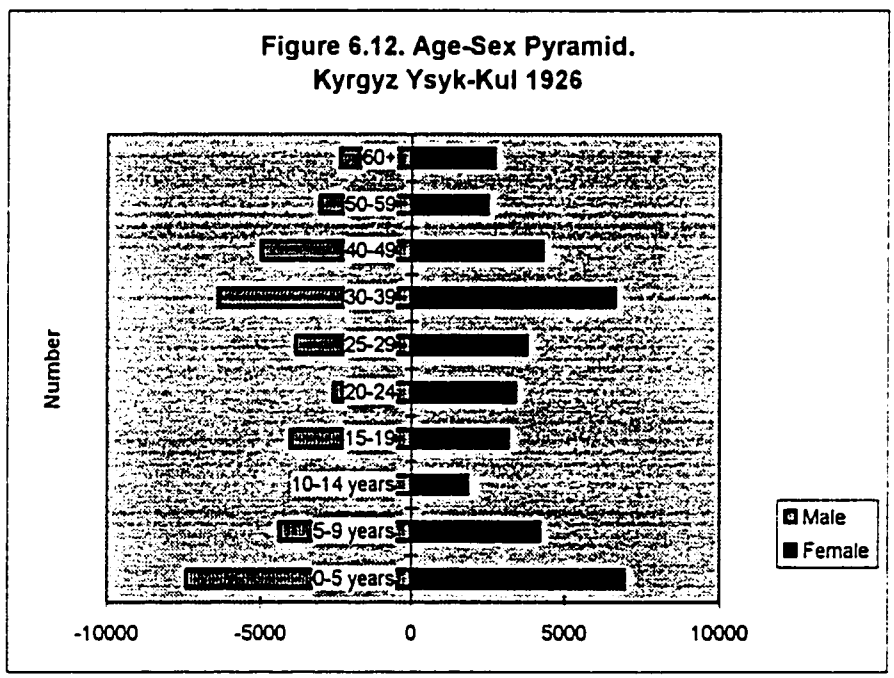
Source: USSR *Vsesoiuznaia perepis naseleniia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)



Source: USSR *Vsesoiuznaia perepis naseleniia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)

The 1926 census also provides data at the oblast level from which from to discern the age and sex of the residents at the beginning of the Soviet period. Figure 6.11 indicates the age-sex breakdown for Karakol Canton, which closely approximated in 1926 present day Ysyk-Kul Oblast.

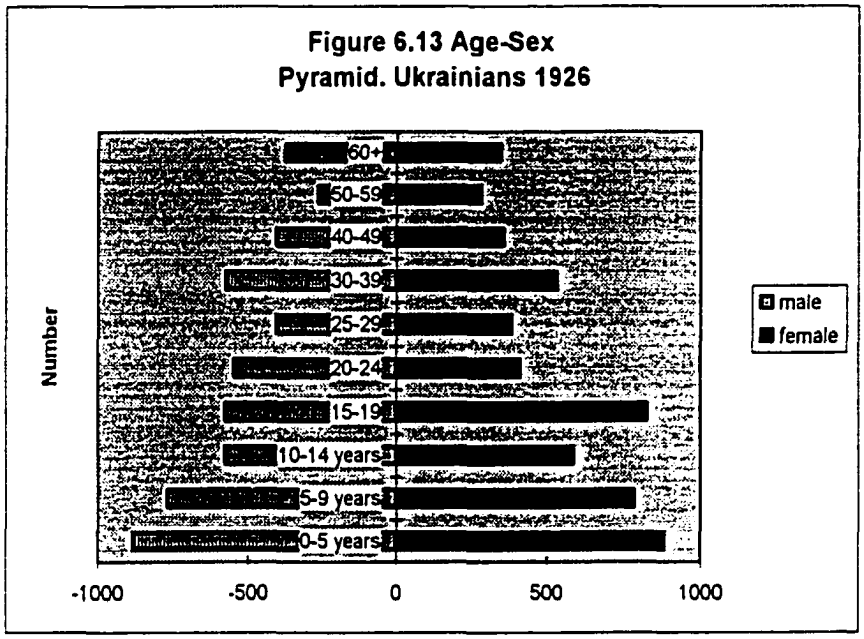
It shows the predominance of ethnic Russians and Ukrainians in the city and relatively low percentage of Kyrgyz (around 30 percent) in the city. Moreover it indicates a low number of young Kyrgyz males in the urban population. In the countryside the age-sex pyramids for differing ethnic groups show remarkably different characteristics.



Source: USSR *Vsesoiuznaia perepis naselenia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)

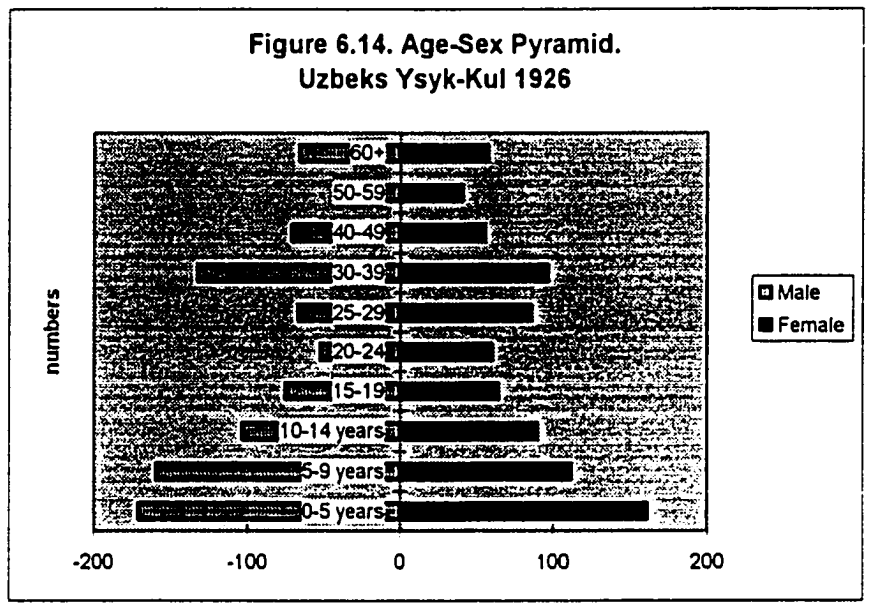
The most obvious facet of the Kyrgyz age-sex pyramid is the reduction in population as a result of the turmoil in and around the war years. This is shown as a reduction in the proportion of males twenty five to twenty nine years of age (killed during the uprising in 1916) and the number of children ten to fourteen years of age. Moreover the famine of 1921 is reflected in a very low

proportion of children 0-5 years of age. The general excess of females over males, reflecting the reduced life expectancy of males over females, seems evident.

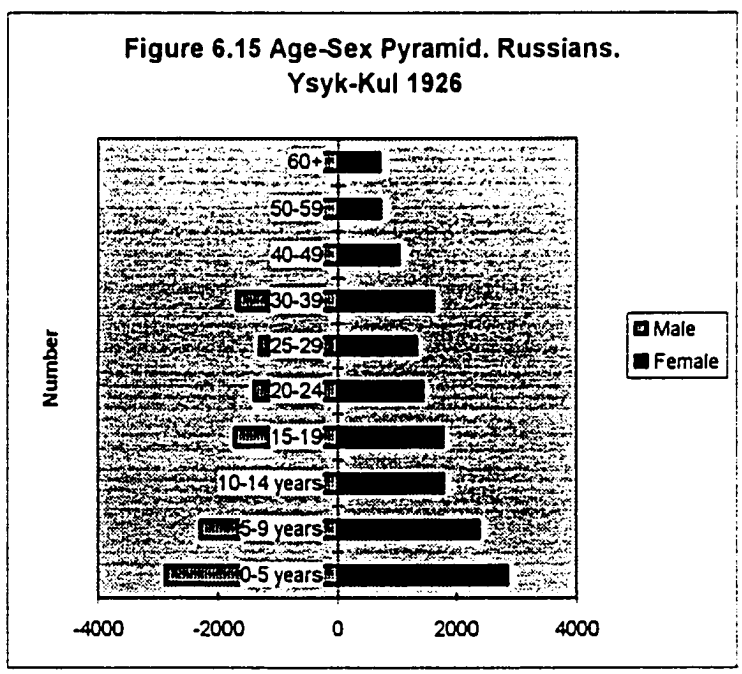


Source: USSR *Vsesoiuznaia perepis naselenia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)

In the Ukrainian age-sex pyramid, the large cohort aged thirty to thirty-nine is noticeable. This bears out Stebelsky's assertion (Stebelsky, 1984) that the majority of Ukrainian migration was in the first decade of the century and before the First World War. The disproportionate number of females throughout the pyramid is noticeable and may reflect either high male mortality. It is also worth noting that the Ukrainian migration in the early part of the century was a migration of youth and the migrants were not heavily weighted to one particular gender. In contrast to the Ukrainian settlers, the resident Uzbeks are marked by high infant mortality, a significant number of male war deaths and a disproportionate number of males in their thirties. The reason for this phenomenon is unknown.



Source: USSR *Vsesoiuznaia perepis naselenia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)



Source: USSR *Vsesoiuznaia perepis naselenia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirgiz SSSR)

Similar to the Ukrainian migrants the Russians in 1926 display the large in migration of settlers around the turn of the century, and now aged between thirty and thirty-nine. In addition this migration was not gender specific. Again the longevity of females compared with males seems noteworthy. The lack of war deaths among the 25-29 cohort is significant, as is the lower infant mortality in the less-than-five age cohort in comparison to the Kyrgyz. It may be that a resident Russian population was conscripted to put down the uprising and maintain stability after 1916 and hence fewer went to the scene of the fighting.

By 1939, the settlement landscape that is visible today had been completed, namely one of a predominantly rural population living in small nucleated settlements, each with its own small industrial base and self-supporting social structures (Table 6.2). The census of 1939 also indicates

Table 6.2: Ysyk-Kul Oblast Urban-Rural breakdown 1939.

Number Rural Residents	147,551	% Rural	84.8 %
Number of Urban Residents	26,619	% Urban	15.2 %
TOTAL	174,170		100 %

Source: USSR Itogi Vsesoiuznoi perepisi naseleniia 1950 goda: Kyrgizskaia SSR Gossstatizdat Mockba 1963

Table 6.3: Employment Breakdown, Ysyk-Kul Oblast 1939

ECONOMIC SECTOR	Number workers	%
Construction	1725	1.3
Transport and Communications	1519	1.15
Forestry	1517	1.15
State bodies and administration	2213	1.68
Art and Printing	2901	2.2
Retail, wholesale and foodstuffs	3153	2.39
Housing and Economy	267	0.2
Industry	68,361	51.9
Public Health and Education	920	0.69
Agriculture	49,064	37.2
TOTAL	131,640	100.00

Source: USSR Itoki Vsesoiuznoi perepisi naseleniia 1950 goda: Kyrgizskaia SSR Gossstatizdat Mockba 1963

the rising industrial base, the predominance of the agricultural sector, and the low level of social development (Table 6.3).

By 1939 the diverse ethnicity that had so marked the 1926 census was dissolving into a supposedly homogenous population. In particular Stebelsky (1984) has pointed out that in order to conform to Soviet ideology and permit advancement, ethnic Ukrainians were now reporting themselves as Russian, and one might assume that other Turkic peoples were reporting themselves as either Kyrgyz or Slavs.

Table 6.4: Ethnic Divisions, Ysyk-Kul Oblast 1939

ETHNIC GROUP	NUMBER	%
Kyrgyz	90,480 (86,857 rural)	52.4
Russian	55,211	31.7
Kazaks	3,309	1.9
Uzbek	2,438	1.4
Others	21,945	12.6
TOTAL	174,170	100

Source: USSR Itogi Vsesoiuznoi perepisi naseleniia 1950 goda: Kyrgizskaia SSR Gossstatizdat Mockba 1963

Table 6.5: Population of major centers, Ysyk-Kul Oblast 1959-1996

	1959	1970	1979	1989	1996
Karakol (a)	32,361	42,009	50,685	61,521	66,920
Balakchy (a)	17,358	29,167	33,110	42,438	46,729
Ananyevo	N/A	8,452	8,077	8,749	N/A
Pokrovka (now Kyzyl Suu)	8,382	10,283	11,429	13,140	
Kadzhy Sai	5,989	7,600	6,995	8,232	
Teploklyuchenka	6,333	7,362	8,159	10,029	
Bokonbaevo	5,589	8,626	10,035	11,613	
Cholpon Ata	2,518	4,805	7,221	9,669	
Tyup	6,089	8,951	10,334	11,722	
TOTAL YSYK-KUL OBLAST	233,729	314,386	350,634	403,917	421,536

a. The city of Karakol had 21,193 residents in 1939 and Balakchy had 5,426.
Source: State Statistical Committee

The fifties and particularly the sixties saw a rapid growth in the population of Ysyk-Kul

Oblast. Growth rates were over three percent per annum for the earliest years and much of this growth was concentrated in the major centers. In Karakol, Balakchy, and Tyup this growth may be attributed to agricultural processing and other industries, while the smaller centers like Cholpon Ata and Bokonbaevo grew as the tourist facilities on Lake Ysyk-Kul were developed in the 1960's

Table 6.6: Ethnic concentrations in selected cities Ysyk-Kul Oblast 1989

	Karakol	Cholpon Ata	Tyup	Balakchy	Pokrovka (Kyzyl Suu)	Dzergalan	TOTAL IN YSYK-KUL
KYRGYZ	22,262	4,151	5,818	27,488	6,448	1,123	273,257
RUSSIAN	27,069	4,296	5,010	11,577	5,640	517	92,615
UKRAINIAN	2,617	273	166	832	177	33	7,366
UZBEK	2,421	105	56	372	100	15	3,756
KOREAN							200
GERMAN	231	139	28	229	25	20	1,700
TATAR	1,765	224	40	675	144	17	4,013
KAZAK	704	161	241	384	53	15	6,433
TOTAL POP	62,600	9,669	11,722	42,438	13,140	1,178	403,917

Source: Unpublished data. Oblast Statistical Office

By the time of the 1989 census, Kyrgyz still formed the largest ethnic group in Ysyk-Kul, but Russians predominated or formed a significant minority in the larger centers of Karakol, Tyup, Pokrovka, and Cholpon Ata.

Rural Settlement Patterns and change.

Notwithstanding the expressed desire of the Soviet authorities to have labor mobility, the refusal until 1976 by the Soviet authorities to allow rural farm workers to leave the countryside[10] had the effect of keeping rural populations high and reducing migration to the cities. Furthermore the high birth rate of 30.5 per 1000 in 1970 of the ethnic Kyrgyz. (Narodnoe khozuiAaistvo SSR 1989) exacerbated this situation. The following table illustrates the essential rural nature of Ysyk-Kul on the eve of independence, a time that was seeing large rural-urban shifts in all other parts of the

world.[11]

Table 6.7: Rural-Urban Populations, Ysyk-Kul Oblast 1951-1991

YEAR	Rural population	Urban population	% Rural	% Urban
1951	162,000	43,000	80	20
1959	174,009	59,720	75	25
1961	188,000	64,000	75	25
1970	224,915	89,471	72	28
1971	226,000	90,000	72	28
1979	246,126	104,508	70	30
1981	247,000	112,000	69	31
1986	257,000	128,000	67	33
1987	261,000	132,000	67	33
1989	274,497	129,420	68	32
1991	287,000	139,000	68	32

Source: State Statistical Committee

Rural land management and Farm Production in Ysyk-Kul

Centralized Planning in the constituent republics of the former Soviet Union took the form of Gosplan in Moscow, setting targets for the republic's economy. The republic planning agency, Gosplan Kyrgyzstan, in turn would pass on to the oblast planning agency in Karakol the targets and that agency would instruct individual rayons what production level was expected.

Table 6.8: Livestock Issyk-Kul Oblast Kyrgyzstan 1940-1988.

Year	Cattle	Cows	Sheep and Goats	Pigs	Horses
1940	98,500	38,000	549,000	14,900	84,000
1965	145,.800	51,500	1,744,800	26,600	42,900
1970	136,500 (216,200)*	52,800 (83,700)*	1,815,400 (3,875,100)*	26,100 (26,100)*	46,000 (105,500)*
1974	136,500	53,400	1,798,400	27,700	45,100
1980	(215,300)	(86,500)	(4,066,300)	(26,200)	(95,500)
1985	(226,300)	(91,900)	(4,222,800)	(25,300)	(100,900)
1988	(246,300)	(102,600)	(4,309,000)	(33,700)	(109,400)

* There is a major discrepancy between the figures for livestock numbers in the 1974 Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR v *Narodnoe khozuiAaistvo Kirgizskovoi* and the 1987-88 Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR v *Narodnoe khozuiAaistvo Kirgizskovoi*. In the above table, data provided in the 1987-88 survey are given in parentheses. The reader is also advised to refer to livestock numbers for 1991 onwards presented in chapter 7. It suggests that the most accurate data are 1974 data. The discrepancy cannot be explained by the fact that the data were for Tyan-Shan as in 1970 Naryn was made a separate oblast and hence numbers should have been less for the period 1970-1988.
Source: Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR v Narodnoe khozuiAaistvo Kirgizskovoi 1974 p126and 1988 goda p 179.

Table 6.9: Agricultural Production. Issyk-Kul Oblast Kyrgyzstan 1965-1974

	1965	1970	1974
Grains	32,000	35,800	77,500
Sugar Beets	-	600	2,700
Potatoes	30,884	31,955	36,612
Vegetables	4,169	5,015	8,802
Beef and Veal	24,500	27,900	31,400
Milk	45,100	49,700	56,200
Eggs	17,621	15,505	17,710
Wool	6216	6685	7,632

All figures in Tonnes except eggs, which are numbers
Source: Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR v Narodnoe khozuiAaistvo Kirgizskovoi 1974p.136

In Ysyk-Kul Oblast the typical rayon-level plan would coordinate the projections and aspirations of approximately thirty-four kolkhoz and twenty-two sovkhoz. At the kolkhoz, the choice of crop, the location of the crop in the field systems, and other organizational decisions were considered quite liberal, and, as a result, at this level they possessed a fair degree of autonomy.

Table 6.10: Sown area Ysyk-Kul Oblast, Kyrgyzstan 1965-1974(in Hectares).

	1965	1970	1974
Total Area	184.3	187.8	189.9
Grains	87.3	78.0	83.0
Winter & Spring wheat	53.0	45.5	45.1
Oats and Barley	5.1		
Potatoes and Vegetables	8.8	8.9	9.8
Potatoes	8.1	8.1	9.0
Vegetables	0.7	0.8	0.8
Fodder including grain	83.3	96.3	97.0
Hay from Perennial grass	53.8	62.4	69.1
Silage from Maize	1.1	1.1	0.7
Maize Silage and Fodder	17.5	15.5	13.2

Source: Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR v Narodnoe khozuiAaistvo Kirgizskovoi 1974 p.119

The sovkhozy were different in that they were administered directly from the republic level. Crops were chosen for them, employees were paid by the state directly and they were not owners, even collectively, of the enterprise. As a result they were analogous to state employees.

Table 6.11: Production of Foodstuffs. 1970-1988 by Ownership, Kyrgyzstan.

	1970	1980	1985	1988
		Kolkhoz		
Cattle	95,900	88,600	84,000	97,800
Milk	201,100	235,000	260,900	303,600
Eggs	30,500	26,600	22,200	26,300
Wool	9,000	7,800	6,400	7,100
		State Farms		
Cattle	59,100	111,400	123,300	144,900
Milk	108,700	197,200	219,700	249,800
Eggs	76,200	200,800	293,400	382,100
Wool	4,000	8,300	7,600	8,200
		Private Plots		
Cattle	9,700	14,500	1,800	31,400
Milk	5,200	3,600	9,800	1,200
Eggs	31,800	28,000	23,500	22,800
Wool	800	2,200	4,400	5,100

Source: Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR v Narodnoe khozuiAaistvo Kirgizskovoi 1988 goda. P 182 and 183.

Their contribution to the rayon output was integrated into the rayon plan and thus a complete picture of what a distinct land area produced that could be used for planning purposes.

Table 6.12: Percentage contribution to production of different Land Tenure systems Kyrgyzstan 1965-74

FARM CATEGORY	1965	1970	1974
	Potatoes, vegetables and Fruit		
State Farms	33%	27.6 %	29.5 %
Kolkhoz	19%	18.4 %	19.5 %
Private Plots on Kolkhoz	26.3%	31.8 %	29.3 %
Private Plots	21.4%	22.2 %	21.7 %
	Forage Grains		
State Farms	43.6%	41.2 %	43.3 %
Kolkhoz	54.4%	55.8 %	54.0 %
Private Plots on Kolkhoz	1.5%	2.1 %	1.9 %
Private Plots	0.3%	0.9 %	0.8 %

Source: Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR v Narodnoe khozuiAaistvo Kirgizskovoi 1974 p 118

Private plots of land were a permissible[12] and a vital part of the rural output.[13] Their contribution to the rayon effort was also recognized.[14] Moreover, the type and variety that these areas produced of such commodities as fruit and vegetables were a major factor in keeping

consumer needs at the local level at least partially met.

Soviet Cultural Impress on the landscape of Kyrgyzstan

Pallot (1991) has indicated that until the fifties little thought had been given to the type of settlement in which the collective and state farm worker would live. Kruschev believed that the urban structure and lifestyle was the form most conducive to the realization of communal socialist ideology, and so during his administration the program "Rural Settlements of the new type" was introduced to offer the same type of services as the towns and in the process standardize settlement morphology throughout the Soviet Union. Under this program the preferred type of housing was the low-rise ubiquitous block of concrete apartments often centered on a village square or park usually dominated by a bust or statue of Lenin. Where there was already a central focus to the settlement, discrete areas containing all amenities the residents could wish (retail areas, sport complexes, and cultural facilities) were concentrated in one area on the periphery of the settlements. These so-called micro-rayons are now a conspicuous part of the urban morphology of the larger settlements of Karakol and Balakchy. In the smaller urban centers only the central parks with the Lenin statues and the local administration buildings are still evident.

As a result of rural settlements being given a low priority in the years under Stalin and Lenin, the level of social services within the communities was low until the sixties. Most rural communities derived their power from local generators installed in the late forties and early fifties and were not connected to a grid system until the seventies.[15]

Vernacular Architecture

As a result of the changes to the rural settlements under Kruschev and for the subsequent thirty years, the large ornate colonial buildings of the Czarist Era were gradually replaced by the stark uniformity of the low-rise concrete apartment blocks of the Soviets. Initially these were

concentrated in central areas, but gradually they took over the peripheral settlement areas. Settlement was totally nucleated. The only exceptions were the summer yurta and low-rise sheep pens or kashar built on the piedmont fringe to overwinter sheep. These structures now lie empty and abandoned throughout the rural areas.

As we have noted pre-cast concrete became the favored building material for the rural settlements. A plant was located in Ysyk-Kul for precisely this function. The only instance where native stone was still used was in mausoleums and in some walled orchards and stock enclosures.

Field Divisions and Systems

By 1925 most of the current area of Ysyk-Kul Oblast was cleared. (Appendix G). Thus the challenge for the Soviet authorities was to impose a field division system that demarcated boundaries of individual kolkhoz and sovkhoz. Vogeler (1996) indicates that in Eastern Germany the current field boundaries were and are very much a function of state hegemony[16] inasmuch as there was a legacy of field systems from the original landowners ("the Junkers"). In Eastern Europe collectivization modified this landscape by using the large "landscape fields" of the Junkers and creating collective field divisions within that framework.

In the case of Kyrgyzstan this modification was not possible, as there were no former landowners or fields. As a result the boundaries used for the state and collective farms in Kyrgyzstan (the landscape fields of Vogeler) were natural boundaries- gullies, streams, and man-made roads and tracks. Unfortunately the existing roads and the lake trended east west, but in order to give the new collectives a variety of land-use types from shoreline to mountain pasture the administrative boundaries were forced to trend north-south. As a result, the former kolkhoz boundaries tend to run in a north-south direction following natural features (gullies, river courses and valleys). As such they are not so striking in the landscape as the hedges and trees of Western

Europe or the township and range divisions of the American West. Field divisions at the farm level were of necessity the major arterials for water supply. Thus the portions of the landscape that exhibit long lines of trees and hedges tend to be internal farm divisions rather than major farm (collective) boundaries. A plan of the morphology of a typical kolkhoz follows in figure 6.1. Perhaps the most unchanging element during the soviet period was the system of summer grazing areas. Founded in the mists of time, these areas were relatively unaffected by collectivization. The reason this system could prevail was that the rural Kyrgyz essentially lived in communities that, upon settlement, still reflected their tribal and subtribal groups. The grazing areas also reflected his individual tribal breakdown. Upon collectivization the tribal and familial groups were confirmed, and the division of summer grazing areas was left to the individual groups. Certainly the Soviets ratified and confirmed these areas, but to reorganize or change them was not necessary under collectivization. Thus by 1979 the spatial manifestation for the grazing areas for Jailoo in Ysyk-Kul was a complex division of spatially distinct areas as shown in chapter 10, map 10.3 and map10.5.

Infrastructure: Roads, Streets and Railways.

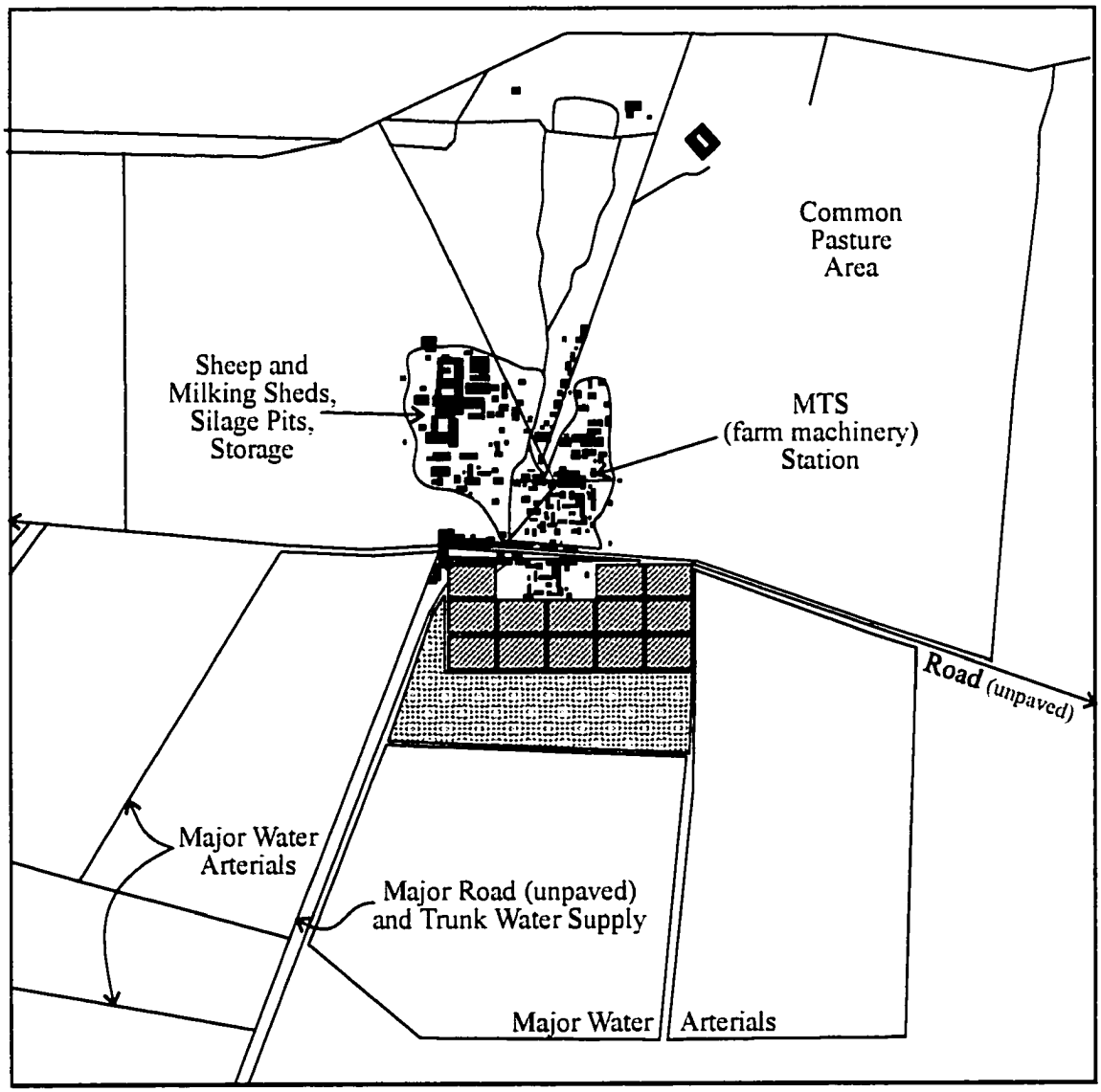
The fact that Lake Ysyk-Kul is navigable and is located in the center of the oblast meant that water-borne transportation was the preferred (only) means of reaching the eastern end of the lake until the road along the north side of the lake was completed in 1939. The first steamer plied the waters of Ysyk-Kul in 1926 and subsequently the export route of primary raw materials was by water before being transshipped onto the rail line completed from Balakchy to Bishkek in 1948.

Individual Localities: Military landscapes

The location of Ysyk-Kul far from the source from which most invasions of Russia had occurred and hence from the geopolitical center of western Europe, made it a natural base for secret military

Figure 6.1

Typical Layout Kolkhoz circa 1979



Source: Based on Field Mapping Jyolyz Kolkhoz 1995, and other Kolkhozy.

projects. The Soviet Union conducted torpedo testing at Lake Issyk-Kul as far back as World War Two. The remoteness noted above, the fact that it remains ice free in winter and that Issyk-Kul is a saltwater lake and thus approximated oceanic conditions made it a natural location for this activity.[17] Torpedo testing continued after the war and reached a height in the seventies with a major complex at developed at Koy Sary on the south shore of the lake and at the port of Pristin Prezervalsk. At the height of activity at the eastern end of the lake it employed over two thousand civilian workers housed in Karakol, Mikhailovka and Lipenka. [18] The importance of this testing ground was such that the lake was closed to foreigners up to 1993. In 1993 the Russians abandoned the testing facilities and today rusting boats and cranes and dilapidated buildings marks the landscape. Concern over the environmental effects of the military presence also exists. Since the facilities were associated with torpedoes, there is the potential for lead contamination, acid spills (from batteries), kerosene spills, hydrogen peroxide spills and possible spills from monopropellant fuels (propyl nitrate).

The strategic importance of this frontier was heightened by the deterioration of Soviet relations with China in 1956. The continuation of uncertain relations with China has continued to make this region bordering China important militarily. Russian garrisons at Koy Sary and Karakol still remain.

Ysyk-Kul was also the location of a military sanitarium at Barskan on the south shore of the lake. It acted as a rest center for high-ranking military officers of the Soviet armed forces. The resort complex that used to employ almost one thousand service workers is now reduced to an empty resort with perhaps one hundred employees.

The Tourist resorts of Lake Ysyk-Kul

Ysyk-Kul had always possessed an aura of magic and its curative powers, latterly attributed to its

radioactive properties, were part of this tradition. In the Second World War the lake was the site of major convalescent facilities for wounded soldiers. In the sixties the shoreline was more extensively developed as a tourist destination. Major resort hotels and attached sanitarium were built by workers unions as rest facilities where the ranking soviet leaders would receive, as part of their benefits, a five week stay at the resort. The facilities ran to 100 percent occupancy during the summer months and yet were closed in the winter. Large numbers of service workers were based in settlements like Cholpon Ata and statistical data reflect that these settlements increased in population accordingly in the sixties and seventies. Upon the coming of privatization the source of visitors ceased and the hotels now stand empty awaiting either new owners or demolition.

Conclusion

The Gorbachev reforms commencing in 1985 brought very little change to remote and hard-line Kyrgyzstan. It was changes at its core that brought about changes in Kyrgyzstan, beginning with the all-union parliamentary elections in March 1989. Most significantly, four candidates who were not communist nominees gained election and once parliament convened additional voices were heard supporting the reforms of Gorbachev. Dissent was now widespread, and culminated in ethnic riots in the southern city of Osh in June 1990 which were only quelled by the appearance of the leaders of the new, fledgling democratic movements who now held great political influence in the country. Presidential elections in convened in October unexpectedly resulted in a split vote and to break the deadlock and yet maintain the power structures "Askar Akaev... a meek and inexperienced scientist, was elected President" (Huskey 1997 p.252). For ten months Akaev led a coalition government with the communists. His unexpectedly strong and vociferous support of Gorbachev and Boris Yeltsin during the coup of August 1991 shifted power in his favor; in the next two months an independent Kyrgyzstan was declared under Akaev and he won direct election

to the Presidency. His subsequent bold and radical approach to reform has been the hallmark of Kyrgyz agriculture since this time and will be examined in chapter seven.

ENDNOTES

[1] The famine of 1921 that struck Russia was a major threat to the ability of the Bolsheviks to hold onto power. Kyrgyzstan became a major source of food for the revolution and many suggest it was the major reason Lenin could hold onto power thus preserving the Soviet system.

[2] For a detailed and readable account of the changes that were sweeping Central Asia and the nature of the rural Kyrgyz economy see Stepanovitch (1921).

[3] Strong (1931) reports that as early as 1929 Soviet administration was already well esconsed in the remote valleys of Southern Kyrgyzstan.

[4] See Medvedev (1987) and Remick (1996).

[5] In addition, in order to divide the ethnic groups in the Fergana valley, a Soviet border commission in 1924 on orders from Stalin redrew the political boundaries such that there was no absolute majority in any one part of the region but each new republic would get a share of the land and the ethnic groups that inhabited the land. Thus in the portion of the Fergana valley in Kyrgyzstan, Uzbeks dominate as the ethnic group while considerable numbers of ethnic Kyrgyz live in Uzbekistan and Tadjikistan.

[6] In Karakol the reconstruction of the Cathedral began in 1961 under Kruschev. However the pogrom against Islam continued well into the seventies. For example in the city of Osh the last mosque was destroyed in 1978.

[7] Not coincidentally in 1956 the name was changed from Stalin Kolkhoz to Issykul Kolkhoz.

[8] As in many other areas the State Secret Act of 1947 prohibited publication of many economic and social data. Data were first published in Statistical Handbooks in 1956, three years after Stalin's death and then were often deliberately erroneous. Thus the empirical data from this time is either not available or extremely suspect.

[9] For a full account of the reasons why see Medvedev (1987).

[10] Passport requirements for internal travel had been introduced by Stalin in 1932 to keep the peasants on the farm. However the fact that kolkhozniks could not get passports militated against the young peple becoming farmers in the post war years, thus creating the reverse of the desired effect. Central Asians thus tended to migrate to the cities in the fifties and sixties prior to registration age of 18 to avoid losing travel priviliges. In the seventies when passports were issued to rural residents the pull to the cities was not so great and rural populations stayed high, a situation that continues to the present.

[11] Table 6.13: Rural-Urban Breakdown Kyrgyzstan, Republic and Oblast level, 1950-1991.

Oblast		1951	1961	1971	1981	1986	1987	1991
Djalala bad	Urban Pop(%)					207	212	230
	Rural Pop(%)					488	501	551
Ysyk- Kul	Urban Pop(%)	43 (20)	64 (25)	90 (28)	112 (31)	128 (33)	132 (33)	139(32)
	Rural Pop(%)	162 (80)	188 (75)	226 (72)	247 (69)	257 (67)	261 (67)	287(68)
Naryn	Urban Pop(%)	11 (7)	28 (17)	29 (14)	42 (17)	49 (19)	51 (19)	54 (21)
	Rural Pop(%)	142 (93)	137 (83)	168 (86)	198 (83)	209 (81)	212 (81)	205 (79)
Osh	Urban Pop(%)	190 (26)	291(32)	371(31)	457 (30)	527 (30)	539(29)	
	Rural Pop(%)	532 (74)	598(68)	831 (69)	1077(70)	1228(70)	1265(71)	
Talas	Urban Pop(%)	15 (12)	22 (12)	44 (22)	55 (22)	65 (24)	67 (24)	

	Rural Pop(%)	106 (88)	128 (88)	159(88)	192 (88)	207 (86)	211 (76)	
Chui	Urban Pop(%)							
	Rural Pop(%)							
City of Bishkek	Urban Pop(%)	175 (97)	252(98)	442 (98)	552 (98)	617((98)	632(98)	
	Rural Pop(%)	4 (3)	5 (2)	8 (2)	9 (2)	10 (2)	9 (2)	

KYRGYZSTAN	1913	1922	1939	1950	1960	1970	1980	1990
Urban Pop (%)	106(12)	95(10)	270(18)	475(28)	722(34)	1098(37	1387(38)	1663(38)
Rural Pop (%)	758(88)	788(90)	1188(82)	1241(72	1409(66	1836(63	2199(62)	2703(62)

[12] Each kolkhoz worker was allowed to keep 1 cow, approximately 10 sheep, and a horse. TACIS estimates that with this system 30 percent of the sheep and 25 percent of the horses were privately owned. Pigs and poultry were also kept on private plots and were a significant part of the family food supply.

[13] See Chapter Eight.

[14] In Kyrgyzstan, these private plots while constituting only 0.86 percent of the land area produced 19.5 percent of the nations meat, 51.5 percent of the milk, and 30.8 percent of its wool.

[15] Compare the Rural electrification program in the U.S. that was virtually complete by 1939.

[16] Vogeler (1996) points out that in the thirties Derwent Whittlesey indicated that division of land and the resultant landscape is often a result of state hegemony. This is certainly true from the evidence of the English enclosures of the eighteenth century up to the Soviet imposition of political philosophy onto the eastern bloc landscape. However this dissertation suggests that the result of state hegemony is often different as both political goals and the response at the local level can be markedly different.

[17] Unclassified CIA reports (U.S. Dept. of Defense 1997) suggest that the lake did not always offer the required depth and salinity conditions for all testing, necessitating final testing at ocean sites

[18] The facilities contained major sport and entertainment complexes in addition to the military installations.

CHAPTER 7: LAND TENURE IN AN INDEPENDENT KYRGYZSTAN, 1991-1997

Dawson (in Pacione 1986, 6:149) implies that changing land tenure is the single most important determinant of rural land change in its influence on spatial patterns. He says:

> "systems of land tenure show marked spatial discontinuities at national and other administrative boundaries, irrespective of any similarity in the underlying physical environment, and close associations with spatial patterns of land use, agricultural productivity, settlement, trade in farm products, levels of economic development and a wide range of cultural and social characteristics."

He goes on to point out that this is a dynamic process and that:

> " changes in those systems can precipitate revolutionary consequences in both the spatial arrangement of the economy and its man-land relationships, and less radical forms may create hybrid landscapes in which new structures coexist with earlier forms. Thus agrarian reform raises issues which are fundamental to a wide range of geographical approaches and topics."

The foregoing chapters have focussed on the evolution of the Kyrgyz landscape up to 1991. The most influential process acting on the landscape to that date was the abandonment of a nomadic, undocumented system of land ownership for a collectivized system of land tenure that began in 1917 and was essentially complete by 1960. This was not an evolutionary process but rather a dramatic shift arising from state hegemony. The cultural landscape adjusted accordingly. In 1991 land tenure again changed radically, and the nature of the change was as dramatic in its spatial effect as had been collectivization of the land and personal property under the Soviets.[1] Chapter seven traces the effects of this systemic change by examining the differences in land use, the change in land tenure, and resultant cultural adaptations and physical manifestations.

Table 7.1: Land Tenure Kyrgyzstan, 1985 and 1990.

	Total Land Area		Agricultural Land Only	
	1985	1990	1985	1990
All cooperatives Including Kolkhoz Association of Coops	1,242,000	1,234,600	655,200	651,000
		None		
All State agricultural enterprises not including Research institutes and Subsidiary enterprises	1,666,000	1,680,500	890,700	907,800
Peasant farms		None		
Total land used by agricultural enterprises	2,961,100	2,959,900	1,577,600	1,579,500
Land reserves	676,500	676,700	8,000	8,000
Forestry enterprises	143,500	143,500	7,300	7,200
Settlements	6,900	6,800	800	700
Land owned by industry, defense, and communications	678,000	676,900	26,700	26,300
Nature reserves, recreation, historical/cultural		2,200		500
Hydro-Land	1,500	1,700	100	100
TOTAL LAND AREA OF YSYK-KUL	4,467,500	4,467,700	1,620,500	1,622,100
Land used by farmers outside the Republic boundaries	161,900	161,900	69,900	69,900
Land used in Ysyk-Kul by other republics	8,800	8,600	7,000	6,800
TOTAL land used within oblast boundaries	4,314,400	4,314,400	1,557,600	1,559,100

Source: State inspectorate on Land resources and Engineering
Note: Agency has rounded figures

In Ysyk-Kul Oblast from the seventies on the trend of reducing the number of Kolkhoz and increasing Sovkhoz as a result of the increasing inability of the Kolkhoz to be economically viable farm units was also apparent. Ysyk-Kul also presented an interesting phenomena: over 160,000 hectares of land inside Kazakstan was used by Kyrgyzstan farmers for winter grazing, while 8,000 hectares of Kyrgyzstan was used by Kazak nomads for their herds' summer pastures. Each of these areas reflected historic grazing patterns that predate the Soviet period and upon independence

created the potential for land-use conflicts, particularly because the winter pastures in Kazakstan became more degraded as abandonment of summer pastures occurred. Moreover as inter-republic trade and dependency issues became more evident in the 1990's these grazing exclaves became significant bargaining items. Today, relations over historic Kazak grazing areas in Ysyk-Kul and Kyrgyz winter pastures in Kazakstan are somewhat more amicable than those in the south between Uzbekistan and Kyrgyzstan, and yet in all areas potential future conflict remain.

Land Reform and Tenure

Land Reform 1991-1995

With the advent in 1990 of a new government in Kyrgyzstan under President Askar Akayev, there was an immediate move [2] to transform the rural areas from a centralized, command structure to a privatized, individual, market-based economy.[3] Reform of the agricultural sector began with passage of the Law on Peasant Reform on November 10, 1991[4] that allowed for individual or family farms on unprofitable state or collective farms. Furthermore, the bill provided that up to 15 percent of the land area of profitable collectives was to be made available to new farmers. The individual farmers and farm collectives became owners of the enterprises, but not the land,[5] and they were granted the capacity to decide the farms' organization and operation. The decree, administered by the State Bureau in charge of Mass Privatization and applying only to arable land, created the possibility of four new forms of tenure:

1. Peasant farms

Small single- or multiple-family farms that were proscriptively created, usually on the poorest of land from state or collective farms.

2. Association of Peasant Farms

A recognized association of peasants working within an existing collective structure.

3. Joint-Stock companies

A business entity created by the State Property Committee, which transferred the former collective assets to the residents, by issuing shares. Management of the entity was invariably unchanged (TACIS 1995).

4. Agricultural Production Cooperatives

Formed by division of former collective farms into two or three cooperatives, this arrangement was closely analogous to the pre-Kruschev division of settlements into extended family groups. But again management invariably stayed the same.

While all elements of the decree were in place by February 1992, the reform initially went nowhere primarily because the administrative mechanism to separate and delineate the land base was not in place until 1993 (See Prostermann and Rolfes, 1994). Some private farmers did emerge during this period but it is generally agreed that the first to apply or break away as peasant farms were given the worst land. Furthermore the requirement forcing them to acquire many of the needed inputs from their former Kolkhoz or Sovkhoz acted as a significant brake on their potential for success. However, many of these new enterprises succeeded and are now widely seen as pioneers of the new system.

Shortly following the initial decree, the government ordered rayon administrations to set aside 50 percent of irrigated arable land for a National Land Fund. The fund was designated for subsequent peasant farms to be created in order to preserve "traditional ways of Kyrgyz farming." As a major ownership category in the new system of land tenure the fund was to become particularly important in the evolution of the settlement landscape when land allocation under private ownership began to occur.

The change in land tenure was not accompanied by a change in the supply of inputs and in the markets for the products of the land. All of the types of farming enterprises were dependent on the state for inputs such as fertilizer, veterinary services, and transportation to markets for the produce. In the case of wheat the government still issued quotas to farms and guaranteed a purchase price for the grain. Thus a truly free market was not present.

As seen in Table 7.2, by 1994, it was clear that little had actually changed in the way of land tenure. On January 1, 1994, only 13 percent of Ysyk-Kul's arable land was in peasant or private hands [6] while over 75 percent remained in some form of collective ownership.

Table 7.2: Percentage of Arable Land Held by Various Types of Enterprises, 31 December 1993

	Ysyk-Kul	% of Republic	Kyrgyz Republic
Total Arable Land held by all types of Agricultural enterprises	190,300	14%	1,298,300
% Peasant Farms, Private Farm and Association of Peasant Farms	13		13
% Cooperatives	17		9
% Collective Farms	31		35
% State farms	28		31
% Other (a)	11		12

a = includes joint-stock companies, agricultural research institutes, subsidiary agricultural enterprises, and other state agricultural enterprises.

Totals may not = 100 due to rounding

Source: MAF and State Statistical Committee

Associated with this lack of progress in individual ownership was the fact that large farms still prevailed. In Ysyk-Kul those private farmers that did exist were trying to operate on farms that were an average area of eight hectares, a size even smaller than the national norm.

By 1994, it was clear that in order to effect significant change there must be a more radical approach. Thus by Presidential Decree of February 1994 the responsibility for land privatization was moved from the State Privatization Agency to the Ministry of Agriculture.

The ministry was charged with the following goals:

Table 7.3: Mean Arable Land Holdings (in hectares) of various Enterprise types, 1 January 1994

	Ysyk-Kul	Difference from national Mean	Kyrgyz Republic
Peasant and Private Farms	8	-4	12
Association of Peasant Farms	1,330	+ 530	300
Cooperatives	2,295	+1625	699
Collective Farms	3,729	+1939	1,790
State farms	2,382	+181	2,201
Other (b)	127	-113	240

(b) *Includes joint-stock companies, state agricultural research institutes, subsidiary agricultural enterprises, and other state agricultural enterprises.*

Source: MAF and State Statistical Committee

1. To liquidate all state, collective and specialized farms.

2. To distribute shares and assets among all rural workers.

3. To create smaller farm sizes (in the range of 10-150 ha).

4. To establish a minimum farm size of ten hectares.

In order to accomplish these goals, the decree created maximum lot sizes based on terrain and soil type: twenty hectares for intensive farming; twenty-five hectares for average farming and thirty hectares for mountainous farming. Additionally it established a procedure by which the Ministry of Agriculture, in consultation with local administrations, could establish an appropriate minimum plot size "based on local conditions." A new classification of five tenure options emerged:

1. Individual Farm

Single-Family Farm

2. Peasant Farm Enterprise

Multiple-Family < 30 ha. (Intensive)< 50 ha. (Extensive)

3. Agricultural Cooperative

30-100 ha. (Intensive) 50-150 ha. (Extensive)

4. Collective (but non-State)

> 100 ha. (Intensive) or > 150 ha. (Extensive)

5. State Farm (State Owned)

> 100 ha. (Intensive) or > 150 ha. (Extensive)

The decree attempted to proscribe optimum parcel size, but in practice the land area was divided by the number of persons on the former kolkhoz or sovkhoz, and this determined plot size. Moreover many of the kolkhoz or sovkhoz members who may not have worked the land,[7] vested their share in other former kolkhoz members who farmed on their behalf. In late 1994 the true private farms in Ysyk-Kul Oblast averaged only eight hectares, but instances of new farm families receiving as little as 0.5 hectares was not unknown, owing to the need to give equitable land portions to all former collective workers.[8] However, because many collective members had vested their share of land in other former kolkhoz members, or more commonly permitted the former collective manager or Akim to oversee their land and interests, the arable landscape appeared very much as it had in 1990. Furthermore while the decree of 1994 reduced the portion a rayon must devote to the National Land Fund [9] to 25 percent, the large fields designated as fund lands between 1991 and 1994 were still very much in evidence in 1997. Thus at the end of 1994 only on marginal, usually non-irrigated, land could one find private farmers, on small farms, attempting to grow a variety of produce.

Land Reform in 1995

The government and the local oblast and rayon administrations vigorously promoted the reforms dictated by the decree of 1994. Change proceeded faster and was more extensive than under the first decree. However, in Ysyk-Kul the process of change was the slowest of all the oblasts, and in January 1995 large farm enterprises were still the norm (25 percent-33 percent).

Table 7.4: Percent of Arable Land [10] Held by Various Types of Enterprises, 1 January 1995

	Ysyk-Kul	Kyrgyz Republic
Total Arable Land held by all types of Agricultural enterprises	187,800	1,302,200
% Peasant and Private Farms	4	12
% Association of Peasant Farms	14	12
% Cooperatives	24	11
% Collective Farms	28	25
% State farms	22	23
% Other (a)	8	17

a = includes joint-stock companies, state agricultural research institutes, subsidiary agricultural enterprises, and other state agricultural enterprises.

Totals may not = 100 due to rounding

Source: MAF and State Statistical Committee

Perhaps the major reason the breakup of the former collective and state farms proceeded so slowly was because, upon land reallocation, many former Kolkhoz workers had no real background in farming as they were nurses, doctors or even tractor drivers. Hence, at the urging of the former collective managers, they formed and joined new cooperative organizations (Joint-stock companies or collectives). In reality the "new" cooperatives looked and functioned much like the former Soviet organization.

As a corollary to this reorganization of the land on paper, cultural legacies began to reassert themselves, because a subsequent decree in 1992 had established rural committees to oversee farm restructuring. These rural committees contained, by law, from three to seven members, of whom the chairman and deputy chair were appointed by the rayon akim and the rest were elected from the community. As the former collective manager often remained in the village and the rayon akim was often not replaced by the President, the role of the former Soviet administrators was changed but they stayed as the major decision-makers. It was they who decided what land was to be given to whom.[11] Furthermore in the election process for the remaining

committee members, villages often elected the aksakals who were *de facto* elected officials even during Soviet periods, and election to the committee now gave them legitimacy.

The private farmer still faced difficulties functioning within the new system. He was still without access to collective machinery and other supplies. In attempting to access these inputs there was invariably resistance from the former collective managers who saw the private farmers as "difficult and uncooperative." For the private farmer who owned livestock, pastureland was not allocated to new enterprises, and so the new farmer was forced to share pasture with existing enterprises that retained the historic grazing rights (Amankelde and others in personal interviews). Finally, at the macro-level, the state was still influential in influencing crop choices, especially wheat, and this distorted the market adjustment to crop choice. At the local level one result of this equitable division of property was that new farmers wanted (and may have needed) inputs that were formerly communal property, such as a new tractor, but they did not have the monetary resources or the market access to obtain them. On the positive side, the smaller fields created more intensive farming and crop selection was such that farmers were beginning to grow a wider variety of produce.

Table 7.5: Number and Type of Agricultural Enterprises (New Topology). 1 January 1995

	Ysyk-Kul	% of Republic	Kyrgyz Republic
Individual Farms	63	0.6	10,077
Peasant Farms	225	1.8	11,989
Agricultural Cooperatives	19	10.4	181
Collective Enterprises	2	3	66
State Enterprises	1	1.7	57

Source: MAF quoted in Land Tenure Center 1995

Land Reform, 1996-1997

In 1996, however, a dramatic change in the pace of privatization occurred, primarily as a result of the presidential decree issued on November 3, 1995. The oblast administration began to take a more proactive stance toward privatization (Mambetov Pers.Com.) by mapping the land base, pushing the reallocation of land, and registering land to individual and multiple landowners. To expedite this process the oblast placed administrators in the villages to ease the process of privatization, and, perhaps most significantly, to require the local governments to set up village councils to implement privatization of land. This latter step had the effect of legitimizing the local aksakals as major players in the privatization process. The village councils, often headed by the aksakals, allocated the land by either petition, lottery, or by reinstitution of historic grazing and arable rights. Thus, in June 1996, of 1,435 landowners in Ysyk-Kul Oblast, 1,271 or 88 percent were private farmers.

Table 7.6: Land Tenure. Ysyk-Kul Oblast and Rayon's. June 1996: State Inventory

Rayon	Ak-Suu	Djeti-Oguz	Issyk-Kul	Ton	Tyup	City	TOTAL OBLAST
Collectives including Kholkhoz	2	1	1	3	4		11
Association of Farm Households	2	19	3	19			43
State Agricultural Enterprises	1	4	25	12	5	13	60
Joint Stock Companies			1				1
Sovkhoz	1	2	3		1		7
Scientific Research Establishments	3	1	2	3	2	4	15
Auxiliary Enterprises	19	2	19	11	9	1	61
Other Ag. Produce enterprises	5		1	1	2	15	24
Other Enterprises		7	2			10	19
Private Farmers	273	136	266	245	351		1271
TOTAL	337	203	158	315	399	23	1435

Source: State Committee on Land Registration

By the spring of 1997 the process was so well advanced that in Tyup Rayon there were only three collective farms still in existence, and they were being kept that way as possible future crop-research sites. Furthermore on the new private and family farms sowing of the spring crops was being undertaken on the basis of the new land allocations. In 1996 the oblast undertook a survey to ascertain the extent of privatization.[12] The oblast administration concurred with the state figure of 1,272 private farmers, but suggested there were considerably more peasant farms and cooperatives.

Table 7.7: Land Reform, Ysyk-Kul Oblast June 1996: Oblast Inventory.

Rayon	Individual Farms		Peasant Farms		Agricultural Coop's		Land Fund	TOTAL
	Number	Ha	Number	Ha.	Number	Ha.	Ha	Ha.
Ak-Suu	189	12,591	687	14,747	38	260,754	11,681	299,773
Djeti-Oguz	133	7,885	642	10,166	102	413,544	10,520	442,115
Ton	108	13,695	275	7,580	89	349,637	5,559	376,47
Issyk-Kul	89	4,665	147	6,676	94	187,210	7,768	206,320
Tyup	117	7,009	402	12,370	139	153,408	11,713	184,500
TOTAL	636	45,846	2,153	51,539	462	1,364,553	47,241	1,509,179
Ave. Unit Size	72 hectares		23.9 hectares		2,953.6 hectares			

Source: Ysyk-Kul Oblast Land and Agrarian Reform Center

The process of privatization is by no means complete.[13] The continuation of the collectives also allows strong farmer organizations to exist and it is suggested that it may be some considerable time (perhaps fifteen years) before the full rationalization of the tenure and ownership and the resultant field systems is completed.[14]

Field Divisions and systems, 1991-1997

Land tenure and arable land

In the years immediately following the move to privatize agricultural land, in those arable areas that were irrigated, the former discrete and distinct, large irrigated units were broken up and

distributed to individuals. Essentially field systems no longer reflected single ownership, but consisted of a fragmented system of ownership and use. Moreover the dismantling of the water brigades that were part of the collective was not replaced by a group with a common concern with maintenance of the water distribution system required to support irrigated farming (Rakhmanov, personal interview). Thus irrigation channels fell into disrepair, but as visible and permanent elements in the landscape the channels were to prove valuable in the reconstruction of the agricultural system of land tenure.

The challenge of the breakup of the old collective fields was to divide the land in the most equitable and efficient fashion. Vogeler (1996) in a description of field systems in the former East Germany identifies three field types:

1.The large fields defining the largest discreet land units and usually marked by hedges and trees are the LANDSCAPE fields.

2. Within the landscape fields are smaller areas under different crops. These are the CULTIVATED fields.

3. Fields in which different crops are rotated from one year to the another in the same cultivated field are called CROP ROTATION fields.

This system of description is useful in Kyrgyzstan for it assists in describing and defining the landscape. In Kyrgyzstan up to1991 the landscape fields were the final result of the enclosures of the early Soviet years and the Kruschev land amalgamation periods. More specifically they are defined by the major arterial watercourses for irrigation and visually marked by large poplar and willow stands. Land allocation following the decrees of 1991 and 1994 proceeded from this basic unit. Upon decollectivization and privatization of agricultural land, the primary consideration was access to irrigation water. Owing to the paramount need for irrigation water, land allocation began

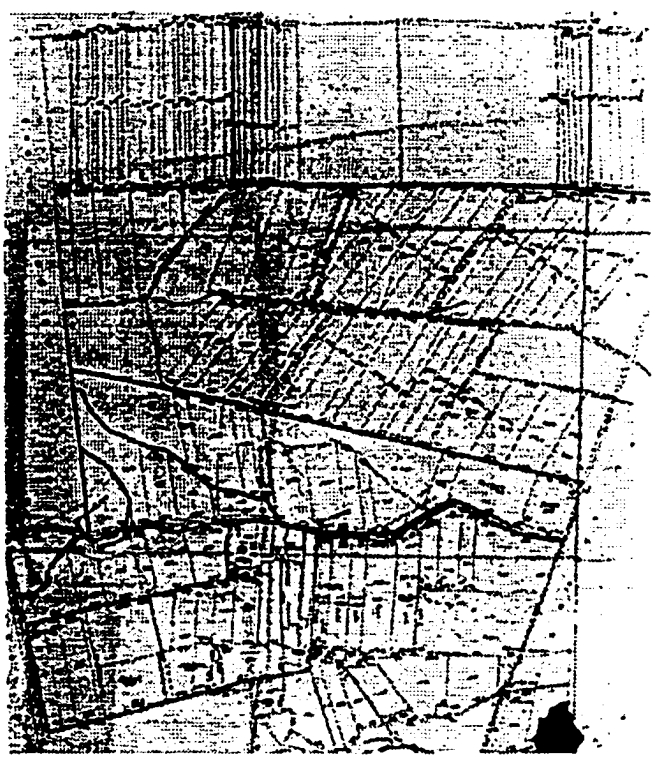
by allowing each family access to the arterial. Thus each family was allotted land fronting the arterial. In order to ensure that the water flow from the arterial was sufficiently slow for efficient irrigation, of necessity, the lots were drawn at an oblique angle to the arterial with irrigation collectors running parallel to the main arterial. As the village populations were large and the land was not being settled by initial occupation, the second level of field systems, the cultivated fields of Vogeler, are the classic long lots. Long lots are found as a vestigial feature in many parts of the world and are analogous to the ridge-and-furrow system in medieval England and in the Eastern United States. This similarity is not surprising. In the Americas and medieval Europe, the long-lot system evolved as a logical division for early pioneers, allowing access to land of equal fertility (usually governed by the existing watercourses). The situation in Kyrgyzstan is very similar.

Jordan (1974) indicates that this system of land allocation has a long history.[15] In discussing the origin of the long lot in Texas, Jordan notes that as early as 1731 the Spanish authorities were dividing land on a similar basis: "Indeed if there was a focus it was the *acequia*, or irrigation ditch, which followed the high ground between the two streams. Moreover the pasture land remained communal and was not included in the long lot holdings in contrast to the *Hufenflur* settlements in Europe." In the case of Kyrgyzstan, the origins of the long lot system came more from their being a practical and equitable form of land division rather than owing their origin to any foreign precedent.[16] Indeed Carlson (1975), in discussing Spanish long lots in New Mexico, indicates that "physical geography was more a determinant than cultural transference." The Spaniards developed the long-lot farm largely in order to cope with the semiarid physical environment. The long-lot pattern assured settlers maximum access to limited water resources, and it accommodated larger number of settlers than earlier land grants. Just as importantly, Carlson (1975: 48) indicates that "it was suited to the gradual growth of the Spanish and Mexican

populations, and their social organizations, and it ultimately became the basis for the development and retention of the Spanish-American subculture in New Mexico."

In plate 7.1 the system of long lots demarcating land allocation is shown for the division of a former kolkhoz in Tyup Rayon.

Plate 7.1 Land Allocation, former Dzergalen Kolkhoz, Tyup Rayon, Kyrgyzstan. 1995



Source : Institute of Cartography and Geodesy 1996

Visual Landscapes and the Long Lot impress

Historically, in all land divisions into a long-lot system, the land was previously uncultivated or "open fields." Thus relatively unfettered allocation could be made on the basis of want or need, and size was only constrained by the amount of land the farmer could reasonably cultivate.[17] In New Mexico the long lots have an average frontage of 300 meters and a maximum size of 8 hectares and a minimum size of 4 hectares. In Texas lots were larger both in frontage and area.[18] In

Kyrgyzstan the basis for division was different. Landscape fields already existed and there was a large rural population that needed and were entitled to land. Allocation, therefore, had to be made on the basis of an existing finite area. Thus the lots are narrow (rarely more than 60 meters in frontage) and limited in their length by preexisting landscape field boundaries (see Chapter 10). Moreover, in order to give the new farmers land of varying capability, the separation of land holdings was often necessary. Thus a farmer might have two or three fields to cultivate in different landscape fields.

At present, wooden stakes at the place where water exits from the major irrigation arterial marks cultivated field divisions. Boundaries within the fields are delineated by the edges of individual watercourses. However many farmers want to plant hedges or obtain fencing materials to demarcate their holdings (Keneshbek, pers.com).

Land tenure and Pasture land

In regard to livestock, the herds were similarly divided among the number of Kolkhoz or Sovkhoz members. Thus, for example, each person resident on a dairy farm might now own two cows or, on a stock farm, ten sheep. For pastureland the process of privatization was less prescribed. In the years before 1990, because the government owned the livestock and the land, it was convenient to confirm and use ancestral grazing areas. In effect the government allocated pastureland on the basis of historic grazing areas. Many families might therefore occupy the same summer pasture in any one summer. This was more a social benefit than a potential conflict given that there were no administrative constraints, because theoretically all owned the same land and livestock. The decree of 1991 specifically excluded pastureland from the process of reallocation of land but did provide for the redistribution of assets, of which livestock was a major component. Reallocation of the livestock to private owners proceeded much more swiftly than the reallocation of arable land. In

Ysyk-Kul, by 1994, over 50 percent of cattle, sheep, and horses were privately owned and by 1997 the figure was believed to be as high as 80 percent.

Table 7.8: Livestock Ownership, Ysyk-Kul Oblast, Kyrgyzstan, 1991-1994.

	1991			1992			1993			1994		
	Cattle	Sheep	Horse	Cattle	Sheep	Horse	Cattle	Sheep	Horse	Cattle	Sheep	Horse
State &	122.5	1515.4	35.6	109.3	1197.2	31.3	89.3	997.7	27.7	71.0	606.6	24.2
Collective	73%	81%	74%	68%	68%	64%	57%	59%	56%	47%	43%	48%
Peasant	-	-	-	1.1	122.4	1.4	1.1	69.9	0.8	2.7	42.4	1.3
	-	-	-	1%	7%	3%	1%	4%	2%	2%	3%	3%
Private	45.4	366.3	12.6	51.5	449.2	16.1	611	611.4	20.6	77.1	765.4	25.2
	27%	19%	26%	32%	25%	3%	36%	36%	42%	51%	54%	50%

Source: Natskomstat Kyrgyzskoy Respubliki ,1995

While the decree of 1991 implied that tenure over pastureland would remain the same, with the advent of private livestock, there came a need to separate livestock; in effect the land became directly tied to the livestock. As a result, livestock owners would have to agree on who would graze their livestock where. The decree of 1994 recognized this necessity and vested in the rural committees the power to decide location of grazing areas. Their solution to this allocation problem was to confirm the use of the ancestral divisions, because they believed these were the most equitable and they also had the advantage of confirming geographical tribal divisions. Thus there has been a formal return to the old, pre-1936 system throughout Kyrgyzstan. Maps of this allocation conform to the herders' confirmation of the summer pastures they now use.

Similar to the establishment of the long-lot system elsewhere, the need for additional communal grazing (or a "commons") was also a necessity. In particular, in the case of Kyrgyzstan, this was for spring, fall, and winter pastures close to the settlements. Thus in most settlements a large communal area was set aside for grazing purposes. In contrast to historical precedent elsewhere, the areas were not relegated to the upland above the arable land, but were designated close to the existing settlements, so that individuals who now owned their livestock could access the

commons more easily. The fall, winter, and spring pastures are still those areas most proximous to the farms and are also common pastures.

Rural infrastructure and land tenure

With the advent of private landholdings new infrastructure patterns were also required. The major streets and roads were those made under the communist system, but the division into new landholdings had caused access problems for the new farmer. Initially private farmers who were given marginal land had little or no access to their property and had to create easements across existing landscape fields. The large-scale dismantling of the landscape fields exacerbated this problem. Additional new access roads, in the form of tracks, are being made by farmers across the landscape fields in order to obtain the shortest distance between land holdings in different fields. Resolution of this problem has been a major focus of the Aksakals decision-making role in the early years of privatization (Kuchukov, personal interview).

Village morphology and architecture

The use of the long-lot system led to the establishment of classic patterns of linear settlement in Germany[19] and later in North America.[20] In Kyrgyzstan this development was not possible, as settlement into nucleated villages, or kishlaks had already occurred as the nomadic tent villages or auls were converted to permanent settlements. As a more direct comparison, Hoskins (1955) notes that with the enclosure of the lands in England in the sixteenth and seventeenth centuries there was a movement of individuals out of the villages and into farmhouses built on the land. In Canada this process is known as the "first parcel out" and is represented by the farmhouse built on the corner of the lot. In Kyrgyzstan many new farmers expressed to the author a strong desire to build their own houses once they had become established on the land, and in the first few years of privatization, buildings were beginning to appear. In the case of private farmers, many constructed

residences or at least temporary shelters on their land to guard machinery from theft and their livestock from wolves. The buildings are usually mud or corrugated tin but all that were examined during this study displayed the morphology of those identified earlier in Chapter 3.

Conclusion

By the summer of 1997 the rural landscape of Kyrgyzstan had taken on an entirely new face from the Soviet period. Most noticeable were large families working together on individual long lots planting, fertilizing and irrigating their land. Occasionally tractors with one operator were cultivating the remaining large farm fields. This is in great contrast to only a few years previously when the farmer would be working as part of a large work brigade but which was marked by a complete lack of urgency, much looking and talking and ultimately very little output. It is the changing products and yields of the labors of these families and workers at the farm level that will concern us in the following chapter. From a mixed-farm system of large scale fields with almost a monoculture of wheat mixed with sheep, cattle, pigs and poultry, it will be seen that in the space of ten year the agricultural mix has become more exotic, intensive, rational and ultimately it is believed more productive.

ENDNOTES

[1] It mst be pointed out that the move toward privatization was a movement away from the situation currently existing in the world. Almost 300 million households (out of a total of 520 million households worldwide) make their living on land on which they do not have individual ownership or equivalent rights (Prostermann, Personal Communication).

[2] The speed and commitment with which the new President Akayev, embarked upon land privatization was certainly a surprise to the former old communist guard that had assumed he would be a mere figurehead but also to external observers and interested parties. His commitment to reform may only have been matched by that of the former Baltic republics.

[3] Table 7.9 Ownership and Distribution of Land Resources In the Kyrgyz Republic, 1 January 1991.

	No. of Enterprises		Total Area Held by Enterprises (ha)
All Collective farms *Kolkhoz*	179		7,183,80
Agricultural cooperatives	0		0
Interfarm agricultural enterprises	7		2,600
State agricultural enterprises	1,134		8,838,700
- *Sovkhozes*		263	8,145,500
- State agricultural research institutes		57	522,400
- Subsidiary enterprises		743	83,100
- Other enterprises		71	87,600
-Other agricultural Enterprises		0	0
Peasant farms	8		1,,200
Land excess	30		1,440,000
Forestry enterprises	61		1,072,300
Urban Land/rural settlements	75		58,500
Land of industry, transport, defense and communications	3,740		904,100
Nature protection, recreation, and historical/cultural	147		40,700
Land use under hydro-engineering	777		97,000
Totals			
Land used by the Kyrgyz Republic (KR)		6,158	19,638,900
Land used outside administrative boundaries of the KR		114	870,500
Land used in the KR by other countries		4	1,226,200
Land used within administrative boundaries of the KR		6,048	19,994,500

'Figures nay not = 100% due to rounding

Interfarm Enterprises: Entities that performed services for a group of state or collective farm in a single region. For example, livestock fattening stations in each *rayon* were considered interfarm enterprises. Their function was to collect young livestock from each farm and to transport them via rail to a feed station where they were kept and fattened for 1-2 months until the buyer came to collect them. Seed stations, another example of interfarm enterprises, would provide seed to all farmers in the region.
State Agricultural Enterprises: State farms *(Sovkhoz)*, training farms and research institutes, subsidiary farms of industrial enterprises, specialized farms (such as elite seed farms and brooding farms) and experimental farms of research institutes.
Other Agricultural Enterprises: Includes joint-stock companies.
Peasant Farms: Includes single-family farms as well as associations of peasant farms.
Excess Land: Land which is difficult or impossible to use, for example, high pasture, glaciers, cliffs, and other areas that are difficult to access.

[4] Decollectivization and privatization of the collective and state farms (kolkhoz and sovkhoz) was concurrent with the sale of commercial enterprises and residences. For a list of the relevant decrees and acts affecting land tenure passed by the President or Parliament during this period see Appendix E.

[5] Sale of land is prohibited under the Kyrgyz constitution. However farmers could lease the land from the government for 49 years; this period was subsequently extended to 99 years.

[6] There was, and still is, still much confusion as to what percentage of the land is actually held and worked by individuals. Some researchers (TACIS 1994) have argued that in 1994 the percentage was as high as 13 percent.

[7] Most collective farms counted among their employees such workers as teachers, health care workers, mechanics, etc. Most of them were completely unsuited and did not wish to become farmers.

[8] Table 7.10: Mean Arable Landholdings of Various Enterprise Types, Kyrgyzstan, 1 January 1995 (ha)

	Djalal- Abad	Ysyk- Kul	Naryn	Osh	Talas	Chui	Kyrgyz Republic
Peasant and Private Farms	26	8	18	27	9	5	12
Association of Peasant Farms	628	1,330	509	(a)	309	2,714	800
Cooperatives	443	2,295	440	448	763	550	699
Collective Farms	1,989	3,729	1,860	1,424	2,747	3,053	1,790
State farms	1,250	2,382	1,833	2,077	3,700	2,269	2,201
Other (b)	355	127	433	143	130	354	240

a = No data available
(b) includes joint-stock companies, state agricultural research institutes, subsidiary agricultural enterprises, and other state agricultural enterprises.
Source: MAF and State Statistical Committee.

[9] The decree of 1994 did, however, remove the specification that this land be used for "traditional Kyrgyz farming".

[10] Table 7.11: Percent of Arable Land Held by Various Types of Enterprises, Kyrgyzstan 1 January 1995

	Djalal-Abad	Ysyk- Kul	Naryn	Osh	Talas	Chui	Kyrgyz Republic
Total Arable Land held by all types of Agricultural enterprises	157,000	187,800	131,900	257,500	119,600	447,700	1,302,2 00
% Peasant and Private Farms	21	4	24	19	5	7	12
% Association of Peasant Farms	14	14	31	0	9	12	12
% Cooperatives	6	24	7	10	12	7	11
% Collective Farms	11	28	7	30	39	26	25
% State farms	10	22	17	28	28	26	23
% Other (a)	38	8	14	13	7	21	17

a = includes joint-stock companies, state agricultural research institutes, subsidiary agricultural enterprises, and other state agricultural enterprises.
Totals may not = 100% due to rounding
Source: MAF and State Statistical Committee.

[11] For a list of the relevant decrees and acts of Parliament and the ramifications of each, the reader is referred to appendix E.

[12] There was and is considerable disagreement as to what constitutes a private farmer as opposed to the other classifications and organizations. Indeed many farmers or groups of farmers claim to be "private" because this is widely seen as the desirable and politically correct method of describing ones' operation. Furthermore the oblast authorities also encourage and permit exaggeration of the extent of privatization. Thus the figures presented reflect this reality in reporting.

[13] Russell (TACIS 1994) indicates that up to August 1995 the process of privatization was only 20 percent complete in the nation, based on the requirements of the Presidential decree. Privatization had gone farthest in Naryn and Chui Oblasts (55 percent and 36 percent respectively) while in Jalal-Abad less

[13] Russell (TACIS 1994) indicates that up to August 1995 the process of privatization was only 20 percent complete in the nation, based on the requirements of the Presidential decree. Privatization had gone farthest in Naryn and Chui Oblasts (55 percent and 36 percent respectively) while in Jalal-Abad less than 10 percent had been privatized. TACIS (1994) suggests that the variable progress of privatization is a result of both political and practical reasons. In Chui, the largest oblast in terms of population and containing 10 rayons, proximity to the capital Biskek requires conformity. In Naryn, the most rural of Kyrgyzstans oblast's, land is much more plentiful and more easily privatized and reallocated. Moreover the President seems to have taken a personal interest in progress in Naryn. In contrast, in the Fergana Valley collectives still predominate. In large part this is because water is such a powerful tool, and the banding together under some form of collective system controls the water. The pervasive importance of water also creates the need for deals to be made within the farming community and with neighbors in Uzbekistan.

[14] Table 7.12: Distribution of Land Resources In the Kyrgyz Republic, 1 January 1995.

	No. of Enterprises		Total Area Held by Enterprises (ha)
All collective farms	138		3,274,600
Agricultural cooperatives	199		1,969,700
Interfarm agricultural enterprises	20		578,800
State agricultural enterprises	985		4,037,800
- *Sovkhoz*		137	3,272,500
- State agricultural research institutes		93	448,300
- Subsidiary enterprises		677	225,300
- Other enterprises		93	103,500
Other agricultural enterprises		194	692,500
Peasant farms	13,608		4,789,200
Land Excess	-b		2,209,600
Forestry enterprises	-b		1,068,500
Urban land/rural settlements	-b		101,300
Land of industry, transport, defense and communications	-b		878,100
Nature protection, recreation, and historical/cultural	-b		91,300
Land use under hydro-engineering	-b		93,800

Totals

Land used by the Kyrgyz Republic(KR)		19,675,100
Land used by Kyrgyz outside administrative boundaries of the KR	-b	630,900
Land used in the KR by other countries	-b	950,300
Land used within administrative boundaries of the KR	-b	19,994,500

Figures nay not add due to rounding
b= No data available

Interfarm Enterprises: Entities that performed services for a group of state or collective farm in a single region. For example, livestock-fattening stations in each rayon were considered interfarm enterprises. Their function was to cull young livestock from each farm and to transport them via rail to a feed station where they were kept and fattened for 1-2 months until the buyer came to collect them. Seed stations, another example of interfarm enterprises, provided seed to all farmers in the region.
State Agricultural Enterprises: State farms, Sovkhoz training farms, research institutes, subsidiary farms of industrial enterprises, specialized farms such as elite seed farms, brooding farms, and experimental farms of research institutes.
Other Agricultural Enterprises: Includes joint-stock companies.
Peasant Farms: Includes single-family farms as well as associations of peasant farms.
Excess Land: Land that is difficult or impossible to use, for example, high pasture, glaciers, cliffs, and other areas that are difficult to access.

[15] Jordan (1974) notes the long history of the long lot, with its origins probably beginning in Carolingian times. Study by geographers of the long-lot system and associated settlement patterns is extensive, beginning with the seminal works of August Meitzen (1895).

[16] Jordan also notes that long lots can evolve without precedent: "It is also possible that the *Cote* was developed in Canada without an old world precedent since it was spelendidly suited to the physical envirronment and water transportation system of the French in North America." (Jordan 1974 p. 81)

[17] Carlson (1975) distinguishes in New Mexico the division of floodplain lands, which by their nature were restricted and thus lots were more constrained by spacial extent and numbers of applicants.

[18] In Texas, Jordan (1974) distinguishes between the earlier Spanish survey with wider, longer lots and the later Mexican period with smaller but still large lots.

[19] The *Reihendorf or Hufendorf.* Settlement geographers have also distinguished several sub-categories of this type.

[20] In New Mexico the settlers initially resided on house sites, or *solares,* that were nucleated as a response to Indian threats. Later elongated villages appeared in the rural landscape.

CHAPTER 8: CROP AND LIVESTOCK CHANGES, 1991-1997

Under the Soviet system agriculture was the leading export sector of Kyrgyzstan, generating over half its exports and a third of the GNP. In the six years since independence the farm sector has undergone dramatic change, primarily the drastic reduction of crop yields, production, and livestock numbers. TACIS (1995,e) estimates crop output has fallen 20 percent since independence. The situation in Ysyk-Kul Oblast is little different from that which prevails in the rest of the country. In the arable sector the principal reason for the drop in production and yields is the lack of inputs in the form of fertilizers, insecticides, and herbicides (TACIS, 1995,e). Secondary reasons, but of increasing importance, are the failing irrigation system, fragmentation of large formerly economic farm units into smaller units, continuing uncertainty over land ownership, and the uncertain market conditions that prevail in the agricultural sector. Kyrgyzstan does not have the resources available to immediately alleviate any of these problems. In the livestock sector, herds have been dramatically reduced, in the case of sheep by over 50 percent and beef cattle by possibly over 80 percent, while only horse numbers have remained stable. By 1997 the declines appeared to have been arrested (Natskomstat Kyrgyzskoy Respubliki 1996) and some form of stability was beginning to become apparent. It is these changes that will be examined in this chapter for these dramatic changes in land use have had a significant impact on the rural landscape of both the nation in general and Ysyk-Kul Oblast in particular.

Cultivated Area

Kyrgyzstan possesses almost 20 million hectares of land within its boundaries, of which, in 1990, approximately one half was devoted to some form of agriculture. Of this agricultural land in 1990,

approximately 45 percent were devoted to pastureland. Thus only 5 percent of the country is under some form of cropping practice.

With the coming of decollectivization and privatization significant changes occurred in land use. In the period from 1990 to 1996 the area under annual and perennial crops increased 0.1 percent and 2.2 percent respectively, and the area under fallow and pastureland increased 61 percent and 2.4 percent respectively. In addition the land area under orchards and private garden plots increased over 300 percent and 54 percent respectively. This increase in these sectors came at the expense of hay fields and land that was formerly deemed unsuitable for agricultural purposes. Hay acreage dropped almost 20 percent, and the land that was formerly deemed unsuitable for cultivation fell in area from 7.1 million hectares to 6.6 million hectares, a drop of over 7 percent. Clearly the acreage under cultivation was increased considerably by decollectivization and privatization primarily through the use of formerly marginal land, but it appears hay fields were converted to more intensive and lucrative grain crops and perennial crops. In the case of pastureland it would appear from observation that most of the increase was obtained by bringing areas close to the settlements into use for winter, spring, and fall pasture, as the importance and significance of the summer pastures has declined significantly with the decline in livestock numbers. Also noteworthy is the fact that in spite of the availability of significant acreage devoted to production from private farmers under the Soviet system, cultivation on "land around houses" has increased considerably in the last five years. Similarly the dramatic increase in collective orchards suggests an increasing reliance on homegrown produce. Finally the dramatic decrease of over 7 percent in forested areas is also a concern in the long term. Overall, the area of Kyrgyzstan that was under some form of cultivation increased 2.4 percent between 1991 and 1996. This is in spite of the fact that under the Soviet system cultivation had become very intensive in order to meet the challenges presented by

the demands to increase productivity every five years.

Table 8.1: Changing Land Use, Republic of Kyrgyzstan.1991-1996

Land Category (thousands of Ha)	KYRGYZSTAN			
	1 January 1991	% of Republic	1 January 1995	% Increase/decrease 1991-1996
Annual Crops	1,295,700	6.0	1,297,000	+ 0.1
Perennial Crops	44,700	0.22	45,700	+ 2.2
Fallow	11,900	0.05	19,200	+ 61.0
Hayfields	207,700	1.03	167,000	- 19.5
Pasture	8,844,100	44.23	9,063,300	+ 2.4
Land around Houses	97,600	0.48	151,000	+ 54.7
Collective Gardens	4,400	0.02	4,400	nil
Collective Orchards	2,000	0.010	8,200	+ 310.0
Land Under Amelioration and Fertility Restoration	6,700	0.03	13,600	+ 103.0
SUB-TOTAL AGRICULTURE	10,514,800		10,769,400	+ 2.4
Forest	1,123,300	5.6	1,042,000	- 7.2
Scrub and Brush	106,500	0.53	454.,800	+ 327.0
Swamp	8.600	4.33	6,200	- 28.0
Water Bodies	867,300	4.33	874,700	nil
Roads and Livestock Paths	121,900	6.09	113,200	- 7.0
Streets, Public Squares and Yards	4,960	0.2	6,230	+ 25.0
Land Under Public structures	27.200	0.13	28,900	+ 6.0
Destroyed Land	2,000	0.01	2,700	+ 35.0
Other	7,173,700	35.87	6,639,500	- 7.4
TOTAL AREA	19,994.900	100	19,994,400	

Source: State Inspectorate on Land Resources and Engineering 1996

For Ysyk-Kul Oblast the situation was much like that in the rest of the country. In 1990 the area of improved agricultural land in Ysyk-Kul Oblast was 1,622,100 hectares or 36 percent of a total land area of 4,467,500 hectares. Of the improved agricultural land 191,000 hectares (12 percent) were under arable crops and 1,412,400 hectares or 87 percent were under pasture. In the period from 1985 to 1996, the first five years indicate that increases in improved agricultural area were still occurring under the Soviets. With the coming of decollectivisation land use change in pasture acreage and hay lands mirrored that in the rest of the country, with an increase in pastureland and a reduction in area under hay crops. Significantly the area under arable crops decreased by 2.5 percent while this acreage increased in the rest of Kyrgyzstan. For an explanation of this anomaly one might look at the large rise in the area dedicated to private plots. In Ysyk-Kul

Oblast this increased 2.4 percent between 1986 and 1991, but between 1991 and 1996 it increased 41 percent. In addition figures in the table indicate that much of this land was irrigable. It is not inconceivable that the 3,900-hectare loss in irrigated arable acreage in Ysyk-Kul Oblast between 1990 and 1996 can in large part be accounted for by the 3,300-hectare increase in irrigated private plots.[1] One of the most visible changes occurring in the rural Kyrgyz landscape, particularly on small house plots within and adjoining villages, is the active cultivation of these lands for vegetables and tubers.

Table 8.2: Land Use change.Ysyk-Kul Oblast, Kyrgyzstan 1985-1996

LAND USE (in ha)	1985	1990	1996
ARABLE LAND-	188,800	191,100	187,700
Irrigated	139,500	140,900	137,100
FALLOW	n.a	n.a.	1,400
PERRENIAL GRASSES	5,800	5,700	5,500
Irrigated	5,500	5,300	5,200
HAY	13,400	13,000	11,000
Irrigated	900	900	900
PASTURES	1,412,500	1,412,400	1,417,200
Irrigated	6,400	6,500	5,900
TOTAL IMPROVED AGRICULTURAL LAND	1,620,500	1,622,100	1,622,900
Irrigated	152,300	153,700	149,100
Land adjoining Farms (Private Plots)	13,800	14,200	20,000
Irrigated	9,300	11,900	15,800
Other (Unusable) land	2,833,200	2,831,400	2,747,700
Irrigated	1,700	2,000	3,900
TOTAL LAND AREA	4,467,500	4,467,700	4,390,600
	163,300	167,600	168,800

Source: State Inspectorate on Land Resources and Engineering

At the rayon level the majority of cultivable land is in the eastern rayons of Ak Suu, Djeti-Oguz and Tyup. Of these rayons Tyup has the most land under cultivation but the least under irrigation or potentially irrigable. The western rayons of Issyk-Kul and Ton have the lowest area under cultivation but Ton has significant pastureland in the southern portion of the rayon. Issyk Kul Rayon has little pasture and little additional area that is potentially irrigable. Thus prospects for additional land conversion and hence increased production appear poor throughout the oblast.

Table 8.3: Land use by rayon. Ysyk-Kul Oblast, Kyrgyzstan 1996.

Rayon	Cultivable Land (in hectares.)	Of Which: Orchards	Pastures	Potential Irrigable Land	Current Area Irrigated
Ak-Suu	46,600	13,000	289,900	40,880	30,960
Djeti-Oguz	43,646	1,401	412,695	51,900	38,799
Issyk-Kul	28,800		170,300	37,160	28,517
Ton	20,133	379	316,245	42,400	14,486
Tyup	53,535 (plus 2,996 household lots)	437	145,645	28,800	12,066
TOTAL OBLAST	192,714		1,334,785	201,140	124,828

Source: Issyk-Kul Regional Economic Strategy, Goscominvest 1996

Data on changing agricultural land use, particularly forestry and horticulture, in other sectors of Ysyk-Kul Oblast or the individual rayons are not available, but observation of the agricultural landscape would suggest that many of the trends at a national scale are present at the oblast and rayon level. Existing orchards were difficult to reallocate under the privatization decrees of 1992, 1994, and 1995, and because orchard crops represented a relatively easily cultivated, saleable commodity, many private farmers planted orchards as a cash crop in the early stages of privatization. Thus the widespread planting of apple, pear, and other tree crops has significantly altered the landscape. With regard to acreage under forestry, it is apparent that deforestation is occurring at a significant rate. The edges of landscape fields that were formerly demarcated by long rows of poplar and willow are being quickly and systematically being cleared of trees for firewood.

Data for crop and livestock changes since decollectivization are available for the republic and oblast levels and data for 1996 individual crops are available for the rayon level.

Cropping Practices

Notwithstanding the fact that there has been very little change in the area under cultivation in Ysyk-Kul under privatization, there has been a dramatic decline in yields and therefore production of all crops since independence. Wheat yields have been the least affected, but the most important decline has been in potatoes, as potatoes constitute a major portion of the agricultural makeup of Ysyk-Kul Oblast.

Table 8.4 Agricultural Yields in Ysyk-Kul Oblast, Kyrgyzstan 1990-1996 [2]

CROP	1990	1991	1992	1993	1994	1996
GRAINS -Total	29.5	27.5	31.4	33.7	25.6	26.0
of which: WHEAT		28.8	33.5	35.3	25.6	24.3
BARLEY		26.8	29.9	31.9	25.4	22.0
SUGAR BEETS			100.6	143.9	111.4	80.0
POTATOES	173	165	141	121	99	90
VEGETABLES	285	172	147	126	92	99
BERRIES	43.2	41.8	41.6	38.4	30.8	21
HAY	55.3	47.3	50.8	49.2	39.8	N/A
GREEN FODDER		166.1	188.7	160.6	125.0	N/A

All figures in Centnames/per hectare

Source: Ministry of Agriculture

Grains

Wheat is one of the few agricultural commodities of Kyrgyzstan that has increased in acreage and production in the years since independence.[3] Acreage sown has increased over 70 percent, contributing to production of 620,000 tonnes in 1994. Production, however, has only risen 30 percent, owing to the inability of the growers to procure or afford the necessary inputs of fertilizer, seeds, irrigation water, or herbicides. Furthermore the increasingly unreliable farm machinery for harvest [4] has contributed to an overall yield of only 1.8 tonnes per hectare. The government, which controls the price of wheat by acting as the major wheat buyer in order to control the price of bread

in the marketplace, perpetrates this situation. Currently a loaf of bread retails for 2.5 soms; a price approximately half what the cost would be without price control. The political cost of rising bread prices would be too great for relaxation of controls at the present time. In the meantime the farmers must pay world prices for inputs, and yet they are reluctant to abandon wheat as a crop because it is one of the few commodities in which there is at least some guarantee of return on investment. As a result wheat acreage rises, usually at the expense of not only other grains but also pasturelands and hay fields, while the fields appear more and more yellow as the lack of nitrogen begins to show visually as well as in the crop yields.

Table 8.5: Cultivation of Wheat in Ysyk-Kul Oblast, Kyrgyzstan, 1992-1996.

		1992	1994	1995	1996
Planted Area (in Hectares)		33,221	N/A	37,795	32,052
Production	- Irrigated Areas (in tonnes)	90,179	N/A	N/A	N/A
	- Non-Irrigated	23,068	N/A	N/A	N/A
	TOTAL	113,247	143,700	113,700	N/A
Yield	Winter Wheat (in tonnes per ha)	3.450.	2.0	N/A	25.2
	Spring Wheat (in tonnes per hectare)	2.810	N/A	N/A	23.4

Source. Collated from data Quoted in Winrock report Makus et al 1993, Ministry of Agriculture data, and Oblast Statistical office. Ministry of Agriculture data (see above) indicate higher wheat yields

Within Ysyk-Kul Oblast grain is grown in all rayons, though production is concentrated in the easterly rayons of Tyup, Ak-Suu, and Djeti-Oguz. As Medvedev has indicated (1987: 215), and as shown above, winter wheat (and winter grain in general) gives significantly higher yields than spring crops. However the trend in the former Soviet Union was for spring crops to be grown, primarily as a result of organizational problems, shortage of machinery and shortage of manpower in the fall planting season. The location of winter wheat cultivation compared with spring wheat

varies across the oblast as a result of these factors. Winter wheat is more popular in the western rayon of Issyk-Kul and in Djeti-Oguz rayon. This is because in Issyk-Kul rayon farming is less intensive with greater time and availability for fall planting. In Djeti-Oguz rayon fields are larger than the other rayons permitting greater opportunity for fall utilization of seeders and ploughs. In the other rayons, spring wheat is more popular as the fields are smaller and therefore more numerous and the number of farmers greater than the other two rayons.

Table 8.6: Ysyk-Kul Oblast: Rayon Grain Area, Production and Yield 1996

Rayon	TOTAL GRAINS			Winter wheat			Spring Wheat		
	Area	Harvest	Yield	Area	Harvest	Yield	Area	Harvest	Yield
Ak-Suu	20224	404481	20.0	4980	111179	22.3	6473	113277	17.5
Djeti-Oguz	16871	402436	24.6	8278	218539	26.4	4737	110241	23.3
Issyk-Kul	11797	359582	30.5	6538	202211	30.4	2798	80159	30.8
Ton	10992	241109	21.9	1678	38446	22.9	5587	123847	22.2
Tyup	29143	747752	25.7	7120	156779	21.2	14155	374104	26.4
Karakol	65	815	12.5	4	123	30.7	30	355	11.8
Balakchy	5	75	15.0						
TOTAL OBLAST	88597	215625	24.3	28598	721,231	25.2	33780	33780	23.4

Source: Ysyk-Kul Oblast Statistical Agency 1996 compiled by author.

In contrast to wheat, Ysyk-Kul Oblast grows almost no winter barley, and barley that is cultivated is grown in the two eastern rayons of Ak-Suu and Tyup. Barley is grown primarily for fodder, and hence the fall in livestock has reduced its importance.

In the forties and fifties oats made up a significant proportion of the grain grown in the Soviet Union (Medvedev 1987: 223). Their importance declined when the introduction of heavy farm

machinery and decline in manpower removed the specialized small scale machinery and early seasonal hand sowing in the fields that had permitted its cultivation. With the growing lack of mechanization and the increasingly large number of horses in the country, oats may return as a significant crop in Ysyk-Kul. In 1996 oats were not grown in large quantities, representing only 0.5 percent of the sown area.

Table 8.7: Ysyk-Kul Oblast: Area, Production and Yield by Rayon of Barley and Oats, 1996.

Rayon	Winter Barley			Spring Barley			Oats		
	Area	Harvest	Yield	Area	Harvest	Yield	Area	Harvest	Yield
Ak-Suu				8415	175759	20.9	151	2069	13.7
Djeti-Oguz				3348	73584	22.0			
Issyk-Kul	132	2610	19.8	1970	62149	31.5	261	6050	23.2
Ton				3727	78862	21.2			
Tyup				7759	221324	28.5	57	1087	19
Karakol				27	310	11.5			
Balakchy				5	75	15			
TOTAL OBLAST	132	2610	19.8	25,251	612,068	24.2	469	9200	19.6

Source: Ysyk-Kul Oblast Statistical Agency 1996 compiled by author.

Data are also available at the oblast level for the production of other groats (buckwheat) and leguminous crops (peas and beans). Buckwheat as the major ingredient in porridge was formerly culturally very important to the average Russian but the inability of the centralized system to produce machinery to mechanize buckwheat production has caused a severe decline in production. In Ysyk-Kul it is only grown in the predominantly Russian areas of Ak-Suu (185 ha.) and Tyup (98 ha.) and in very limited amounts in Djeti Oguz (8 ha). Leguminous crops of beans and peas, potentially so valuable to offset the increasing nitrogen deficiencies in the soil, are only

cultivated in Ak Suu (20 ha.) and Tyup (30 ha.) rayons (Ysyk-Kul Oblast Statistical Agency 1996).

Sugar Beet.

The sugar beet has a long history in Kyrgyzstan. Production commenced in the 1930 s and farmers received further impetus to produce with the absorption of East Germany[5] into the Soviet bloc in 1945. However, with the supply of cane sugar from Cuba starting in 1959, and subsequent depletion of soil fertility and the increase in parasites and disease in the sixties and seventies, production of sugar from beets had ceased in Kyrgyzstan by 1986. Of the eight processing facilities in Kyrgyzstan, six have been converted to other uses and the remaining two are processing imported sugar from Cuba. In recent years production of domestic sugar has begun again. Ysyk-Kul Oblast has the climatic conditions to produce high yields of sugar from beets [6] and as the data in table 7.4 above shows, cultivation of sugar beets recommenced in 1992. Yields in the years since independence have been reported in the range of 37-38 tons per hectare, compared with a world average of thirty tons per hectare. These yields may reflect the reduction of pests and disease in the years following 1986, and yields of twenty-five tons per hectare would appear to be more realistic. Without the inputs of pesticides and rotational cropping, yields below 20 tons per hectare may become the average. With a yield of 15-17 percent sucrose, beets in Kyrgyzstan would produce approximately four tons of sugar per hectare. Such a yield would constitute a significant contribution to domestic requirements, but there is now a shortage of processing facilities. In 1993 beets had to be processed in Kazakstan, and any expansion of the acreage planted in beets is dependent on the availability of processing facilities.[7]

Table 8.8: Sugar Beet Production. Ysyk-Kul Oblast, Kyrgyzstan 1996.

Rayon	Sugar Beets for Processing			Sugar Beets for Sheep Feed		
	Area	Yield	Harvest	Area	Yield	Harvest
Ak-Suu	1	140	140.0			
Djeti-Oguz						
Issyk-Kul						
Ton						
Tyup	7	500	71.4	17	3060	180.0
Karakol						
Balakchy						
TOTAL OBLAST	8	640	80.0	17	3060	180.0

Source: Ysyk-Kul Oblast Statistical Agency 1996 compiled by author

Fodder Crops

The heavy reliance of the Kyrgyz agricultural sector on livestock makes the provision of fodder extremely important for the current and long-term stability of the sector.[8] TACIS (1994) believes that a crisis exists in the provision of forage.[9] A number of situations have been suggested for this crisis. Firstly, the usual lack of inputs in the form of fertilizers and herbicides has reduced productivity. Second, the need for subsistence grain has converted many fields normally devoted to hay or barley into wheat. Finally, the lack of logistical support in the form of transportation to the summer and spring/fall pastures has placed a heavy burden on the need for supplementary fodder- a need that is not being met.

Maize as a source for silage is confined to the warmer rayons of Issyk-Kul and Tyup. More common is the cutting of lucerne and sainfoin in the fall which are used as winter feed. It is often supplemented by barley and/or wheat to provide needed proteins. The price guarantees for wheat are making silage crops less and less important in the rural crop mix. The most important location for the production of hay is in Tyup Rayon.

Table 8.9: Fodder Crops-Silage and root crops -Ysyk-Kul Oblast 1996

Rayon	Maize for silage			Silage crops			Fodder from Root plants		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Ak-Suu	88	8200	93.2	230	19,620	85.3			
Djeti-Oguz									
Issyk-Kul	231	12290	53.2	85	3440	40.5	1	200	200
Ton									
Tyup	521	59611	53.2	497	21,775	43.8	113	21846	193.3
Karakol									
Balakchy									
TOTAL OBLAST	840	80101	95.4	812	44,835	55.2			

Source: Ysyk-Kul Oblast Statistical Agency 1996 compiled by author

Table 8.10: Fodder production-Hay, green feed and annual grasses. Ysyk-Kul Oblast 1996

Rayon	Natural Hay-mowing			Green Feed*			1 year grass		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Ak-Suu	1529	8696	5.7	1036	122880	118.6	2381	98190	41.2
Djeti-Oguz	595	5295	8.9	36	5740	103.4	440	5280	12
Issyk-Kul	1055	11117	10.5	858	71354	83.2	2484	42144	17
Ton	250	1825	7.3	857	29995	35	1915	15033	7.9
Tyup	12911	257716	19.5	1661	196152	118	1041	25991	25
Karakol				54	1488	27.6			
Balakchy				23	1380	60			
TOTAL OBLAST	16340	278649	17.1	4525	426994	94.4	8261	186683	22.6

*This is believed to be the same as what in the West is called "Green chop"

Source: Ysyk-Kul Oblast Statistical Agency 1996 compiled by author

The decline in fodder production must be seen in the context of the reduction in livestock,

which in part compensates for the reduction in available fodder. Furthermore, the response in terms of rotational grazing on the extensive natural pastures has major geographical ramifications that are described below.

Horticulture, Root crops, and Viticulture

While the acreage in Kyrgyzstan dedicated to horticulture declined only slightly, production of horticulture crops dropped significantly in the five-year period following 1990. The extent of the declines was grapes (60 percent), fruit and berries (51 percent), vegetables (40 percent), and potatoes (33 percent). Indeed the declines were even greater up to 1993, but 1994 saw recovery in the production of grapes and fruits.

There is reason for optimism about the contribution of horticulture to the agricultural sector. Many of the new private farmers saw horticulture as a viable, potentially lucrative, option on the small land holdings they obtained during the first wave of privatization (Ibraev, personal interview.) Thus fruit trees were planted, and by 1995 they were producing their first fruits. Vegetables have historically been grown on smaller acreage, primarily on private plots and often by ethnic Koreans and Dungans. It became apparent that, following independence, the larger market of Central Asia was no longer available to these farmers but vegetables could be a significant cash crop for feeding urban areas. Hence in the early years vegetable production was rationalized and scaled back. In essence vegetable farmers were adjusting to the local Kyrgyz market in order to keep prices high. At present there appears to be an adequate supply of fruits and vegetables in the markets. Ysyk-Kul is particularly well suited to the growing of apples. Large quantities of apples were exported to Siberia in Soviet times, but the dual problems of transportation to markets and storage have emerged as major problems. Fruits, in particular, have a habit of all ripening at the same time, creating a surfeit of certain fruits at certain times of the

year. At present the farmer is faced with the dilemma of "sell it or smell it." The long-term solution is clearly to build processing plants for juices, but as yet these facilities are not available. Local production would also have to compete with bulk imports from outside, particularly Turkey.

Table 8.11: Vegetable Production Ysyk-Kul Oblast and Rayon's, 1996.

Rayon	TOTAL VEGETABLES			Cabbage			Cucumbers		
	Area	Harvest	Yield	Area	Harvest	Yield	Area	Harvest	Yield
Ak-Suu	135	10763	79.7	65	6569	101.1			
Djeti-Oguz	399	43491	109	59	7054	120	60	6240	104
Issyk-Kul	222	15170	68.3	77	4941	64.2	17	702	41.3
Ton	113	8475	75	34	2584	76	19	1850	97.4
Tyup	847	112129	132.4	105	7140	68	130	17992	138.4
Karakol	29	2900	100	3	405	135	3	294	98
Balakchy	20	2002	100.1	3	399	133	3	225	75.6
TOTAL OBLAST	1765	194930	110.4	346	29092	84.1	232	27305	117.7

Source: Ysyk-Kul Oblast Statistical Agency 1996 and compiled by author

Rayon	Tomatoes			Beets			Carrots		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Ak-Suu	21	777	37	1	193	193	23	1809	78.7
Djeti-Oguz	68	4284	63	52	7061	135.8	45	5400	120
Issyk-Kul	20	1763	88.2	6	426	71	25	2592	103.4
Ton	20	1575	78.8				7	560	80
Tyup	130	23907	183.9	121	33116	273	121	15535	128.4
Karakol	6	486	81	2	226	113	4	484	121
Balakchy	3	198	66	3	22.5	75	3	390	130
TOTAL OBLAST	268	32,990	123.7	185	41241	222.9	228	26770	117.4

Source: Ysyk-Kul Oblast Statistical Agency 1996 compiled by author

Perhaps the most noticeable decline in the oblasts crop mix has been in the cultivation of the potato.[10] Ysyk-Kul Oblast produces over two million tonnes of potatoes on 17,000 hectares of land. This represents almost half of the national output. Yields at 120 tonnes per hectare are thus among some of the highest in the world. During Soviet times the potato was a significant export item, but former export markets have disappeared, as much due to the replacement of Kyrgyz supply by domestic cultivation in Russia and elsewhere as from a lack of ability of former markets to pay. As a result between 1990 and 1995 there was a reduction in production. Ethnically, both Russians and Kyrgyz use potatoes as a staple diet item and it is therefore not surprising that 1996 saw growth in the tonnage of potatoes produced. In all rayons production increased in 1996 and in Djeti Oguz rayon production increased by almost three times. The large increases in production of the potato within the urban centers of Karakol and Balakchy are also noteworthy.

Table 8.12: Potato Production Ysyk-Kul Oblast and Rayon's, 1996. (in thousands of tonnes)

Rayon	1995	1996	1996 as % of 1995
Ak-Suu	51.4	60.1	116.9
Djeti Oguz	18.4	52.9	290
Issyk-Kul	21.0	29.6	140.5
Ton	10.8	15.0	138.4
Tyup	43.1	43.4	100.7
Karakol	2.8	8.0	290.0
Balakchy	2.6	3.4	132.1
Total Oblast	150.1	212.4	141.5
Total Kyrgyzstan	431.6	562.4	130.3

Source: *Sotialbno Econmiseskoe Polozenie Kyrgyzskoi Respubliki* 1996

The apparent recovery in the production of potatoes may, in large part, be attributable to the evolution of the long-lot field system and the family-based system of tenure. Such a system seems ideally suited to the cultivation of the potato, and thus one might expect at least stabilization

if not an increase in output in the next few years.

Table 8.13: Garlic, other vegetable, and Potato Cultivation, Ysyk-Kul Oblast, 1996.

Rayon	Garlic			Other vegetables			Potatoes		
	Area	Harvest	Yield	Area	Harvest	Yield	Area	Harvest	Yield
Ak-Suu	21	1344	64	4	71	17.8	4145	601103	145.0
Djeti-Oguz	50	6600	132	65	6852	105.4	4727	529414	112.0
Issyk-Kul	35	3143	89.8	42	1603	38.2	2407	295623	122.8
Ton	33	1906	57.8				1560	149760	96.0
Tyup	130	8294	63.8	110	6151	55.9	3252	433594	133.3
Karakol	5	430	86	6	57.5	95.8	889	80010	90
Balakchy	5	565	113				381	34290	90
TOTAL OBLAST	279	22282	79.9	227	15252	67.2	17361	2123821	122.3

Source: Ysyk-Kul Oblast Statistical Agency 1996 compiled by author

Table 8.14: Tree and Berry Cultivation. Ysyk-Kul Oblast 1996

Rayon	Gardens, orchards and Sunflower seeds			Grapes (Vineyards)			Total :Fruit Growing and Berry Plantations		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Ak-Suu	1112	20034	18				1135	20585	18.1
Djeti-Oguz	1120	19035	17	54	640	11.9	1189	19975	16.8
Issyk-Kul	2142	38671	18.1	137	3499	25	2333	42980	18.4
Ton	455	6734	14.8	210	4872	23.2	665	11606	17.5
Tyup	701	12646	18	110	3850	35	811	16496	20.3
Karakol	128	3904	30.5	80	1520	19	258	6524	25.3
Balakchy	21	357	17	25	599	24	49	995	20.3
TOTAL OBLAST	5679	101381	17.9	616	14980	24.3	6440	119161	18.5

Source: Ysyk-Kul Oblast Statistical Agency 1996 compiled by author

Livestock

The reduction in livestock numbers since independence has been the most dramatic and visible effect of privatization, decollectivisation, and change to a market economy. In table 7.8 ownership of livestock in Ysyk-Kul Oblast, Kyrgyzstan, for the years 1991-1994, was presented. It indicated a massive transference from collective to private ownership with an accompanying reduction in the total number of animals. The importance of this reduction and the varied reasons are such that each livestock sector must be examined in turn in order to trace the pattern of change.[11]

Table 8.15: Livestock Numbers, Ysyk-Kul Oblast, 1990-1995.

	1990	1991	1992	1993	1994	1995	1996
Cattle, of which:	167,900	161,900	156,400	150,800	134,500	110,600	105,300
Milk Cows	65,000	66,500	67,400	69,900	68,600	59,200	N/A
Sheep and Goats	1,881,700	1,768,800	1,679,000	1,414,400	1,127,200	794,100	800,000
Poultry	1,257,700	1,178,000	934,500	746,300	271,500	227,000	200,000
Pigs	25,600	21,800	18,000	12,000	9,700	8,900	8,000
Horses	48,400	48,800	49,100	50,800	48,700	47,600	43,600

	% Change 1985-1990	% change 1990-1994
Sheep and Goats	0 %	- 51 %
Cattle	15 %	- 25 %
Horses	- 4%	+0. 6 %
Pigs	27 %	- 73 %
Poultry	26 %	- 86 %
Yaks	Unknown	Unknown
Camels	Unknown	Unknown

Source: 1990-1995 Data Ministry of Agriculture.
1996 Data Oblast Agriculture Department

The geographical distribution of livestock within Ysyk-Kul Oblast shows significant variation. The dry, relatively unproductive western rayon of Issyk-Kul has the lowest number of all types of livestock. The southern rayons of Ton and Djeti-Oguz have large numbers of sheep and goats and a corresponding large number of horses used to herd the flocks. Ak-Suu and Tyup

rayons have more of their area devoted to arable agriculture and hence lower numbers of sheep and goats. However, horse numbers are comparable to other rayons (except Issyk-Kul) as horses are a major means of traction and transportation. Cattle numbers are uniform across the oblast, except for Ton and Issyk-Kul rayons where numbers are less. The continued presence of cattle reflects the ubiquitous need for milk.

Table 8.16: Geographical Distribution of Livestock, Ysyk-Kul Oblast, Kyrgyzstan 1995.

Rayon	Sheep and Goats	Cattle	Horses	Poultry	Pigs
Ak-Suu	142,900	21,700	8,300	N/A	1,500
Djeti-Oguz	194,800	25,600	11,400	15,000	1,000
Issyk-Kul	47,700	6,600	2,700	N/A	N/A
Ton	189,000	17,800	9,900	109,100	N/A
Tyup	130,587	25,790	9,715	60,161	2,531
TOTAL OBLAST	704,987	97,490	42,015	184,261+	5,031+

Source: Issyk-Kul Regional Economic Strategy, Goscominvest, 1996.

Note: These data differ from those of the Ministry of Agriculture, quoted above. However they do serve to indicate rough proportions and magnitudes

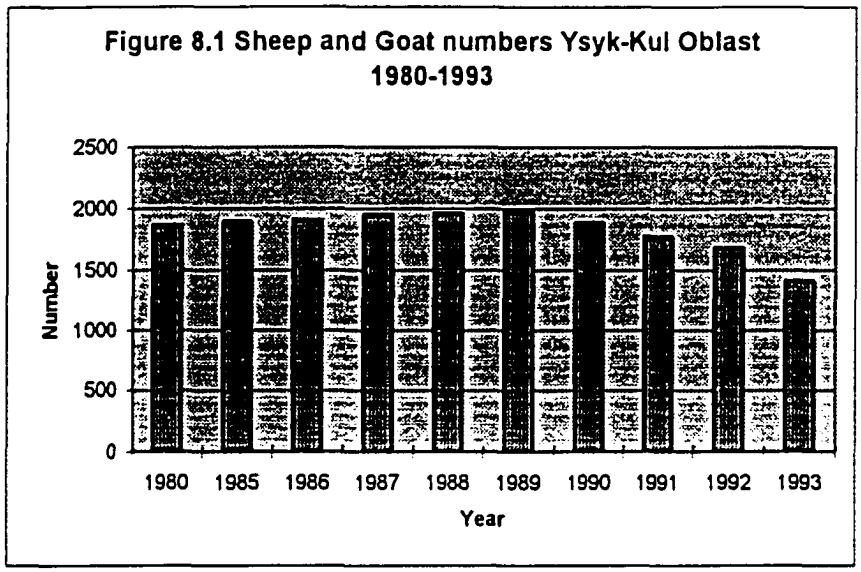
Sheep and Goats

In the five years since independence the decline in sheep numbers has been the most marked feature of the change in Kyrgyz livestock production. From a high of 12 million in 1990, in 1996 there were estimated (TACIS 1995,a) to be less than 5 million sheep. Moreover there has been a dramatic movement away from the Kyrgyz fine-wool breed, or Tokorunnaya, to the Alai semi-fine wool breed. The latter is a favored meat producer while the former is primarily a wool producer. This change in breed is a significant cultural reversion. The Soviet authorities required wool for domestic garment manufacturing and export markets. The authorities specifically developed the Tokorunnaya breed from the Australian merino as a wool-producing sheep. Indeed such was the

emphasis on the development of this breed that there was an expressed goal in the 1970's to produce, in Kyrgyzstan, the quality and quantity of wool produced at that time in Australia. With the coming of privatization, the massive cull was highly selective and was based on cultural food preferences. The Kyrgyz slaughtered the Tokorunnaya because they preferred the taste of the Alai or fat-tailed sheep and because the Tokorunnaya was a wool producer in contrast to the Alai, which was a meat producer. Upon the privatization of livestock, the Tokorunnaya were slaughtered first and the Alai were used to rebuild herds primarily for eating. The sheep herds of Kyrgyzstan are now changing to a preponderance of fat-tailed sheep.

The decline in numbers of sheep and goats in Ysyk-Kul has been of the same magnitude as that in the nation. The reasons for this dramatic reduction in numbers are:

1. Large winter losses in 1992-93 as a result of a harsh winter and lack of supplementary feed.
2. Falling meat prices in the five years since independence, and hence no incentive to invest in future stock.
3. Lack of markets for meat and wool.
4. Privatization of flocks and the resultant cull by the individual owners for food or monetary gain.
5. Absence of centralized direction, thus farmers have reduced the number of animals for which they must be responsible.
6. Lack of transportation because of the lack of gasoline to transport large numbers of sheep to summer pastures.
7. Conversion of fields formerly devoted to production of fodder crops to wheat for food security.



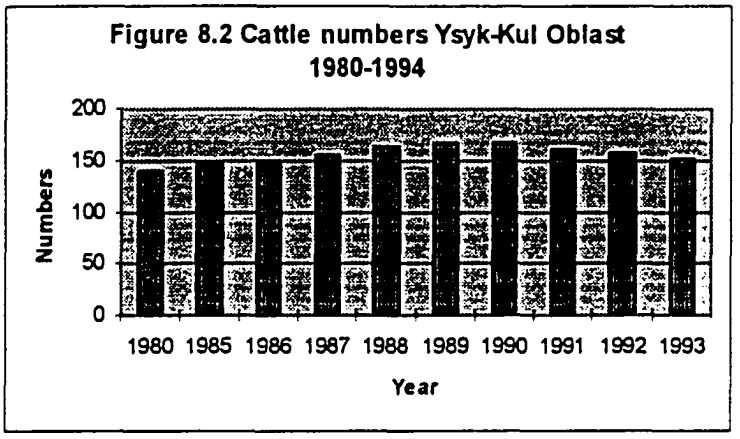
Source: TACIS 1995 (a) Number in Thousands

The result of the decline in flocks has been both positive and negative. On the positive side the summer pastures that were formerly overgrazed and degraded are now recovering to the extent that grasses are waist deep in places. In addition the reduction in numbers has created a lack of supply and prices are now beginning to rise. Hence significant monetary resources are beginning to accrue to the farmers. On the negative side the winter, spring, and fall pastures are badly degraded (TACIS, 1994) because farmers do not have the means to transport the sheep to summer pastures, and hence they confine their free-ranging flocks to proximous areas.

Cattle

Cattle breeding was an early addition to the Kyrgyz farm sector under the Soviet system, with breeds imported from Switzerland and Russia to improve the indigenous stock of the nomadic Kyrgyz. Cattle breeding can be traced as far back as 1946 in Ysyk-Kul, and in the sixties it was the location for pedigree breeding.

The cattle herds of Kyrgyzstan were dramatically affected by privatization. In the years

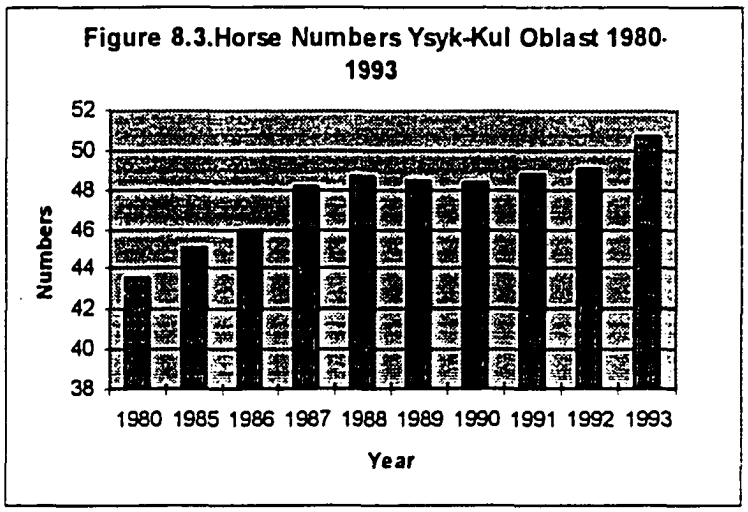


Source: TACIS 1995(a) Number in thousands.

between 1990 and 1995 overall cattle numbers dropped 13 percent, and the drop in numbers was almost entirely attributable to the culling of beef cattle. The number of milk cows actually increased 13 percent but the number of beef cattle dropped 30 percent.[12] TACIS (1995,b) attributes this drop to the cumbersome and inefficient meat processing industry that is unable to pay the price the farmer requires for cattle, and therefore the farmers culled the herds and sold or ate the meat. More simply, it may be that this drop reflects the division of the herds on a per capita basis and that the small farmers' resultant lack of the means or volition to feed beef cattle is a result of cultural desires. In contrast the milk cow represents a necessity for sustainable agricultural livelihood and is a valuable asset in the post-privatization farm mix.

Horses

Horse numbers have remained fairly steady during the five years of independence. Indeed in some years, there has been a slight increase in numbers. This stability is probably a reflection of the cultural importance the Kyrgyz place on the horse. The horse is the source for kumys, fermented mares milk that is used as the primary source of milk in summer months. Horses have also functioned as an economic asset in periods of inflation such as that experienced in Kyrgyzstan over



Source: TACIS 1995 (a) Number in thousands

the last five years. In addition the shortage of fuel both for transportation and traction has placed an increasing reliance on the horse. Indeed it is now very common to see horses harrowing and ploughing fields in the planting seasons.

Pigs

Pig numbers have plummeted by almost 80percent in Kyrgyzstan. Pigs were formerly raised on the large state farms. However the lack of inputs to care for large numbers of pigs coupled with the severe reduction in the market in Chui Oblast caused by the out-migration of the Russians, Germans, and Ukrainians who constituted the non-Muslim market for the meat, meant that pigs were no longer a viable industry in Kyrgyzstan.

Poultry

Poultry have almost disappeared from the agricultural mix in Kyrgyzstan in the five years since independence. The reason is the almost total absence of supplementary protein feed for the birds. While the sources of such feed could be made available locally in the form of by-products of sugar beets and cotton residues, there is no means at present to process these by-products.

Camels

The provision of motorized transport for agricultural purposes and the view of the communist authorities that camels were an anachronistic feature of Kyrgyz agriculture made the camel almost nonexistent in Kyrgyzstan by 1991. With the coming of independence many farmers saw the need and value of camels for transportation, but there was an acute shortage of breeding stock. This situation is changing slowly, but there is still a shortage of knowledge about camel husbandry and a stigma about owning camels. Neither the state or oblast statistical agencies keep data on camel numbers. There is an unproved assertion that there is only one camel herd in Ysyk-Kul and that is located in Ananyevo. If there were other herds, they would almost certainly be confined to the mountain communities of Enilchek, Kara Saia, and Ak Shyrak.

Yaks

As with camels there are no official figures on yak numbers. TACIS (1995,c) estimates there are 50,000 yaks in Kyrgyzstan and that they are confined to the upper elevations of Naryn, Ysyk-Kul, and Osh oblasts. Their value as a source of meat and wool in these areas would suggest a future for the yak, but the prospects for a rise in yak numbers is small. The rural population is stable or declining, and thus the local need for yak wool and meat is decreasing.

Water Resources and Crop Production [13]

Irrigation of crops is an important part of Ysyk-Kul agriculture. Over 68 percent of the cultivated land area is irrigated, and in the cultivation of potatoes and wheat irrigation is particularly important. (Table 8.17).

Irrigation and Privatization. [14]

With privatization the objective of the government was to place the agricultural land base into the hands of a farming community organized on the basis of private farmers who would increase yields

and production. The provision of adequate irrigated land would be a prerequisite. Unfortunately, as previously discussed, in the earliest presidential decree on agricultural land reform following independence, private farmers were given the worst land and this invariably meant lands with a shortage of water.

Table 8.17: Status of Irrigated Agriculture in Ysyk-Kul Oblast 1993

	IRRIGATED AREA				YIELDS	
CROP	Ysyk-Kul Oblast (ha).	% of National Total	Kyrgyzstan Total	%	Ysyk-Kul Oblast. Tonnes per ha	National Average
PERENNIAL GRASSES	69,700	19.6	354.4	35.2	5.5	6.0
SOWN CROPS of which	136,000	17.68	769.1	76.4		
CEREALS	51,900	18.0	288.3	28.6	3.4	3.6
COTTON	-	-	20.7	2.1		2.4
SUGAR BEETS	200	3.44	5.8	0.6	10.6	21.4
TOBACCO		-	20.2	2.0		2.1
SUNFLOWER	100	3.5	2.8	0.3	0.7	0.6
POTATOES	5.5,000	50.9	10.8	1.1	12.1	9.8
VEGETABLES	700	4.8	14.5	1.4	14.2	14.4
MELONS		-	2.5	0.2		7.4
ANNUAL GRASS	7.3,000	16.8	43.5	4.3	2.1	2.6
INDUSTRIAL CROPS	600	10.7	5.6	0.5		
TOTAL	168,900	16.77	1,007.1	100		

Source: Ministry of Agriculture

As table 8.18 indicates, only in Issyk-Kul Rayon was the private farmer given significant amounts of irrigated land This was almost certainly due to the fact that in Issyk-Kul Rayon land without irrigation is essentially uncultivable. In the subsequent decree of 1994, effectively breaking up the kolkhoz and sovkhoz, the unified system of water allocation to individual farm units was destroyed and the resultant individual small farms created by the breakup had no centralized body to allocate water resources.

Table 8.18: Irrigated Land and Private Farmers in Ysyk-Kul Oblast 1996.

Rayon	Number of Private Farmers	Area under Private Farms (in hectares)	Arable Irrigated	Perennial Grasses	Pasture	Orchards	% of Total Irrigated Land in Rayon
Ak-Suu	237	2,880	2,835	45	Nil	Nil	7 %
Djeti-Oguz	136	112	112		Nil	Nil	0.26 %
Issyk-Kul	266	6,425	6245	180	Nil	Nil	19.66 %
Ton	245	428	412	16	Nil	Nil	1.6 %
Tyup	122	4,449	4432	17	Nil	Nil	17.9 %
Total Oblast	1006	14,300	14,000	300	Nil	Nil	8.5 %

Source: State Inspectorate on Land and Engineering

Concurrently the abolition of the water brigades meant that there was no overseer of the system, and thus maintenance and control ended with nothing to replace it.[15] There are now serious concerns over the future of the irrigation system as it is deteriorating rapidly. The most pressing problem appears to be the replacement of the seals for the delivery canals. These seals must be changed every five to six years and most are now cracked with the resultant high leakage. In the intermediate term there is a need to clean out all the trenches of sediment and in some cases vegetation. Extensive sections of broken concrete canals throughout the republic are also in need of replacement.

The Kyrgyz government nominated a Minister of Water Resources in 1995 and in one of his earliest decrees indicated that in 1996 water supplies would be cut by 40 percent and the cost raised from eleven tyin to seventeen tyin per cubic meter (2 cents per cubic meter). This is considered a high levy considering that 60-70 percent of the flow goes out of a field unused (Choresh, personal interview).

By 1997 oblast level bureaucrats, who were responsible for water allocation and billing, had

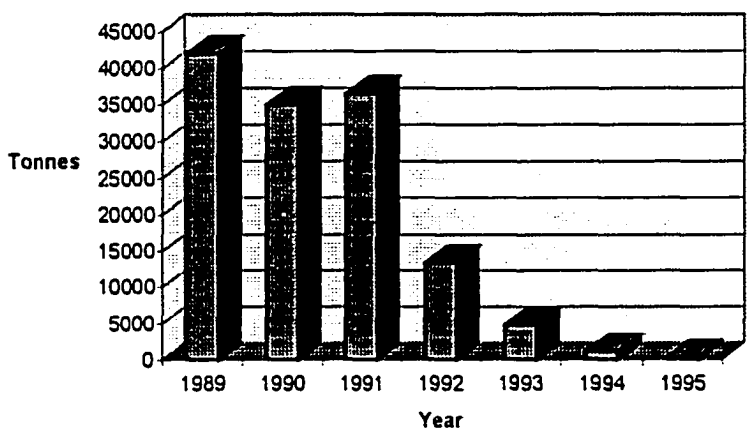
replaced water brigades in the villages and they were beginning to rationalize the system of water distribution at the village level. As a result the decline in irrigation practices may have begun to be arrested.

Farm Inputs

Fertilizer

There are no fertilizer plants in Kyrgyzstan. All fertilizer is imported from either Uzbekistan (50 percent) or Russia or Kazakstan (50 percent). Fertilizer purchase and distribution was formerly coordinated by a state agency (Kyrgyzselkhozkimia) that also owned the means of application. Balakchy was the regional distribution center for Ysyk-Kul. In order to attain the yields demanded by the five-year plans the application of fertilizers was a major input to the agricultural system. However, it is generally agreed that the application was not well coordinated with applications made too early or too late and often not in the optimum quantity for maximum yields. Yet it is clear that yield prior to privatization owed much to the application of fertilizers. The most visible result of this situation in the rural landscape is the marked yellow appearance of grain crops, caused by a

Figure 8.4 Fertilizer Usage: Ysyk-Kul Oblast 1989-95



Source: TACIS 1995,c.

a lack of nitrogen in the soil. In 1991 with the collapse of export markets and the removal of the need for preset production targets, fertilizer usage plummeted. This would have been acceptable with a stable agricultural economy, but in fact supply from other former republics virtually ceased because of Kyrgyzstan's inability to pay, and the result has been the deterioration in soil fertility and thus smaller yields.

In an effort to counter this deficiency there has been a large increase in organic fertilizers for use on the land. In this regard the retention of animals (cattle and sheep), as sources for fertilizer is an important component in the farm household makeup. However organic fertilizers do not remedy all chemical deficiencies in soil, nor is it feasible to use organic fertilizers for large-scale operations. Lack of commercial fertilizers also means the cultivation of formerly marginal areas may have to be abandoned.

Seeds

During the Soviet period Kyrgyzstan was the location for much of the seed production of the Soviet Union, particularly sugar beet seed and grass seed. The combination of excellent soils, the isolation from the European Plain, the availability of exotic seeds, and the strong control over moisture and water gave Kyrgyzstan an enviable place in the Soviet agricultural system. Upon privatization the seed institutes were required to sell their seed in the marketplace, but the lack of markets and the lack of the customer ability to pay caused the seed suppliers to abandon the programs. In lieu of excellent seed, farmers began to use seed which was of dubious quality from their own crops.

Herbicides and Pesticides

Much like the situation in fertilizers, the provision of chemicals to reduce disease and pests has virtually ceased. Moreover the fact that much of the former application was done by a separate

department of the Ministry of Agriculture meant that the new farmers had little knowledge or experience in applying agri-chemicals. The result has been that the incidence of such conditions as "rust" in wheat crops and nematodes in root crops is increasing thus lowering yields and production.[16]

Farm Machinery

Under the collective system all farm machinery was provided by the state. In the sovkhoz, the farm unit had all the transportation the authorities in the central planning agencies indicated was necessary, while in the kolkhoz a central depot supplied all the requisite machinery. With the exception of bale. r[illegible]e, all farm machinery was imported. Upon independence, the supply of farm equipment [illegible]ne government did not have the revenue to buy new equipment, and when the farm equipment enterprises were privatized the farmers did not have the means to purchase new equipment. Thus throughout Kyrgyzstan equipment is at best seven years old and spare parts are rare and expensive. The situation is exacerbated by the fact that even during Soviet times it is estimated that up to 30 percent of the equipment was not in working order[17] and this percentage has almost certainly risen. Finally, particularly in Ysyk-Kul, fuel and lubricants have been increasingly harder to obtain. The result has been that mechanization is increasingly less a part of Kyrgyz agriculture. In Ysyk-Kul Oblast in particular the amount of farm machinery has always been less than the Kyrgyz average. This in spite of the fact that agriculture in the oblast is the most significant activity and markets far removed from the oblast. By 1996, farm machinery in the oblast was barely coping. Each former collective farm had approximately three of the normal types of farm machinery needed to perform mechanized farming (See table 8.19). Moreover, the prognosis for getting more was poor owing to a lack of farm credit. Again, the response has been a reversion to the cultural norms that prevailed before the Soviet period. For example, during Soviet

times the sheep were often trucked to and from the summer pastures to retain meat and wool quality. In the seven years since independence it is rare to find the seasonal movement to pastures made by truck. Instead the sheep are now driven by a shepherd on horseback, sometimes as far as 100 miles and taking a week and returned in the fall the same way.

Table 8.19: Farm Machinery. Ysyk-Kul Oblast January 1, 1997

Rayon	Number of village Soviets 1979	Tractors	Trucks	Ploughs	Seeding tractors	Cultivators/ harvesters
Ak-Suu	18	57	60	67	62	59
Djeti Oguz	12	93	79	60	79	75
Issyk-Kul	13	65	55	74	71	76
Ton	9	75	25	61	59	82
Tyup	12	63	57	74	70	53
Average Oblast		71	56	67	68	65
Average Kyrgyzstan		67	63	68	62	66

Source: *Sotialbno Economiseskoe Polozenie Kyrgyzskoi Respubliki* 1996

Also more common is the use of the horse for traction and transportation and the use of human labor for harvesting and seeding.

In arable farming areas, the allocation of land on the basis of long lots has obviated much of the need for large mechanized units. Instead, horse and manual labor have replaced machines and individual organic fertilization of crops, particularly root crops and tubers, has replaced fertilizer dispensers.

Conclusion

In conclusion, it appears that the dramatic declines in productivity and yields that were such a marked feature of the last six years have been arrested, and stability has come to the crop and livestock sectors of the agricultural economy. Indeed, there is some evidence that in some crops such as potatoes and tree crops, yields are increasing significantly. In the livestock sector, numbers

have stabilized and adjusted to market conditions. The next chapter will examine the other major component of rural geography, namely the demographic changes, that decollectivisation, privatization and change to a market economy has wrought.

ENDNOTES

[1] Another explanation might be that part of Ysyk-Kul's arable land was previously marginal for cultivation and the absence of fertilizer and other inputs caused the abandonment and reversion to unimproved land since 1990. Some evidence of this abandonment is apparent in the hills of the Sukhoy Krebet outside Karakol and on the piedmont fringes of the mountains.

[2] Table 8.20: Crop Yields in the Kyrgyz Republic, 1990-1994 (centnams/hectare)

Crop	1990	1991	1992	1993	1994
Grains, total	29.3	26	27.8	25.6	19.1
of which: Wheat	26.4	22.4	27.3	26.2	19.3
barley	23.7	20.6	23.6	21.6	15
maize	61.8	58.	51.3	45.2	35.3
rice	17.9	15.5	14.7	11.1	14.2
Cotton fiber	27.3	24.5	24.4	24.	220.2
Sugar beets	168.5	55.7	213.3	189.2	116.2
Tobacco	21.6	21.2	20.8	21.9	19.2
Potatoes	136	137	124	108	90
Vegetables	196	180	154	140	115
Berries	41.2	25.9	35.4	14.2	20.1
Grapes	63.2	45.3	50.6	15,9	25.6
Feed crops					
of which: hay	58.2	53.	53.1	51.3	42.9
green fodder	229.3	204.1	219.	7200	163.

Source: State Statistical Committee

[3] Table 8.21: Grain Acreage, Kyrgyzstan, 1990-1994

GRAINS	Year	1990	1991	1992	1993	1994
	Wheat '000's ha.	193.6	193.6	248.4	338.3	333.1
	Barley '000's ha	266.4	290.1	263.5	235.5	206.7
	Maize '000's ha	65.7	62.5	54.7	40.7	36.6
	Rice '000 ha	1.2	1.8	1.9	2.5	3.0

Source: Ministry of Agricuture

[4] Losses are estimated at 25 percent, owing to the unavailability of harvesters at the right time.

[5] Sugar beets began to be produced as an alternative to cane sugar in East Germany in the eighteenth century, and since that time East Germany has been a leader in beet production.

[6] Ysyk-Kul Oblast has been suggested by the World Bank as being particularly suited for the growing of sugar beets. However, distance to market and the resultant loss of sugar content (up to 30 percent) is a significant impediment.

[7] Table 8.22: Kyrgyzstan Sugar Balance, 1993 and 1994 (in thousands of tonnes)

	1993	1994
Domestic Production:		
From Sugar Beet	16.0	11.7
From Imported Raw Sugar	99.9	69.8
TOTAL PRODUCTION	115.9	81.5.
Imports of refined sugar	52.7	82.0
DOMESTIC CONSUMPTION	162.8	139.8

Source: State Committee on Statistics

[8] Table 8.23: Area devoted to feed crops in Kyrgyzstan, 1990-1994

FEED CROPS	Year	1990	1991	1992	1993	1994
	TOTAL (in thousands of ha.) Of which.	641.4	620.0	575.6	519.2	515.8
	Hay	188.5	185.6	188.6	183.8	200.0
	Green Fodder	156.5	159.8	150.9	135.5	117.5

[9] Medvedev (1987) suggests that the provision of fodder for livestock in the former Soviet Union was always in crisis as a result of the collectivisation of agriculture. He notes (p.268) that fodder is of crucial importance to the livestock sector and that in the U.S. only 22 percent of all grain grown is for human consumption, the rest is for fodder. He goes on to note that in the U.S.S.R.availablility of fodder was so problamatic that bread was often bought by farmers at retail stores and used for fodder.

[10] Table 8.24: Horticulture and Viticulture in Kyrgyzstan, 1990-93

	Year	1990	1991	1992	1993
POTATOES	Area ('000's ha.)	25.2	22.5	27.2	26.2
	Yield (Tons/ha)	13.6	13.66	12.38	10.6
	Production (000's of Tons)	365.1	326.3	362.0	190.5
VEGETABLES	Area ('000's ha.)	20.6	19.5	22.2	14.7
	Yield (Tons/ha)	20.6	19.5	22.2	14.7
	Production (000's of tons)	487.3	398.9	404.0	249.2
FRUITS & BERRIES (Area @ year- end)	Area	48.0	46.6	46.6	
	Yield	4.12	2.59	3.54	
	Production	141.0	85.3	117.5	
GRAPES (Vineyard area)	Area	9.0	8.9	8.3	
	Yield	6.32	4.53	5.06	
	Production	43.3	29.3	31.0	

[11] Table 8.25: Livestock Numbers Kyrgyzstan 1990-1995

	1990	1991	1992	1993	1994	1995
Cattle of which:	1,214	1,205	1,190	1,122	1,062	919.3
Milk cows	507	506	519	515	511	480
Sheep & Goats	10,483	9,973	9,525	8,743	7,322	5,071
Poultry	15,207	13,915	13,571	10,402	6,917	2,100
Pigs	445	393	358	247	169	117
Horses	310	313	321	312	321	298

[12] A cattle specialist, Pierre Mantian, working for TACIS in Osh Oblast believes cattle numbers have been reduced more dramatically than the official statistics show. He suggests a reduction figure of 70 percent may be more accurate (Personal Interview).

[13] Table 8.26: Arable land and irrigated crops (1993) (' 000 ha)

	Total National Area	Irrigated area	Rainfed area	% irrigated
Cereals	623,	326,	297,4	52
Maize	40,7	29,1	11,6	71
Cotton	20,3	18,8	1,5	93%
Tobacco	22,2	20,8	1,4	9 %

Sugar beet	12,1	11	1,1	91	
Potatoes	26,6	8,9	17,7	33	
Vegetables	14,9	7,9	7	53	
Watermelon	1,5	1,1	0,4	73	
Maize for silage	71,5	68,5	3		96
Lucerne	350	225,4	124,6		64
Fruits and grapes	37,4	14,2	23,2		38
Total;	1221	732,1	488,9		60

Source: World Bank 1994

[14] The water of Kyrgyzstan is also a major factor in the environmental concern over the reduction in levels and industrial pollution of the Aral Sea. The average water volume going as outflow from Kyrgyzstan into the Aral Sea basin is 50-55 milliard cu.m. (50 plus 9 zeros) (Lerman et 1996). On the Chui River approximately 50 percent goes out of Kyrgyzstan unused and Kazakstan receives the 60 percent of water Kyrgyzstan has agreed to supply. In addition there has been some reduction in the amount of agricultural pollution into the hydrologic system in Kyrgyzstan as a result of the large diminution in the amount of fertilizers applied to the land. Future protection of the flows into the Aral sea would be enhanced by application of more efficient irrigation systems in the Fergana Valley and concentration on crops that do not require large water inputs (such as Tobacco) or the abandonment of crops such as cotton which, when grown at heights of 3,800 to 4,200 feet as in the foothills of Kyrgyzstan are not optimal for the climatic conditions that prevail.

With privatization the policy objective of the government was to place the agricultural land base into the hands of a farming community organized on the basis of private farmers who would increase yields and production while reducing adverse environmental effects. The provision of adequate irrigated land would be a prerequisite to this happening. Unfortunately, as previously discussed, in the earliest presidential decree on agricultural land reform following independence private farmers were given the worst land and this invariably meant lands with a shortage of water.

[15] Table 8.27: Status of Irrigated Agriculture, Kyrgyzstan by oblast. 1993

CROP	OBLAST							
	OSH	DJALAL ABAD	YSYK-KUL	NARYN	TALAS	CHUI	TOTAL	%
PERENNIAL GRASSES	48.9	26.9	69.7	44.3	37.5	126.9	354.4	35.2
SOWN CROPS of which	126.4	83.7	136.0	95.1	82.7	245.1	769.1	76.4
CEREALS	35.9	31.5	51.9	40.6	35.7	97.2	288.3	28.6
COTTON	7.6	13.1					20.7	2.1
SUGAR BEETS			0.2		1.7	3.9	5.8	0.6
TOBACCO	12.8	5.5			1.9		20.2	2.0
SUNFLOWER	0.5	0.7	0.1		1.0	0.6	2.8	0.3
POTATOES	2.2	0.9	5.5	0.4	0.3	1.5	10.8	1.1
VEGETABLES	2.6	2.6	0.7	0.1	0.9	7.6	14.5	1.4
MELONS	0.4	0.5				1.6	2.5	0.2
ANNUAL GRASS	15.3	2.7	7.3	9.7	2.4	6.2	43.5	4.3
INDUSTRIAL CROPS	0.1	0.2	0.6		1.4	3.2	5.6	0.5
TOTAL	200.2	132.3	168.9	132.2	115.0	328.5	1,007.1	100

Source:World Bank 1995 from Ministry of Irrigation data.

[16] Ironically it was partly the application of fertilizers, pesticides, and herbicides that contributed to the serious environmental problems of the Aral Sea, particularly insomuch as Russia and the former Soviet Union only supplied 15 percent of Kyrgyzstan's agri-chemical needs. The rest came from the west. The cessation of western agri-chemical supplies and their application may assist in the recovery of the Aral Sea.

[17] It is estimated that 23 percent of tractors are unservicable and 30 percent of the farm trucks. (TACIS 1995,e).

CHAPTER 9: FARM HOUSEHOLDS, 1989-1997

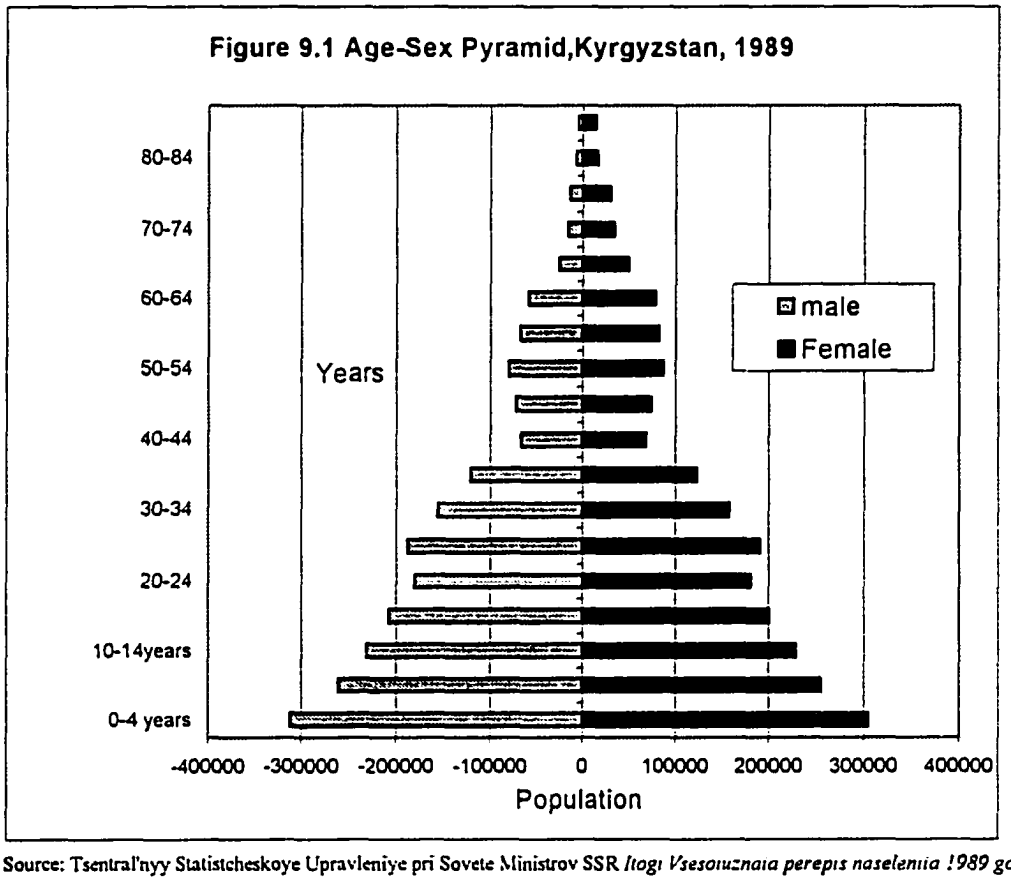
While agricultural geography is about the evidence of spatial patterns in the landscape, the primary force acting within that landscape is the farmer. Chapter nine will examine the characteristics and lives of the rural farm community in Ysyk-Kul. While most of the secondary statistical data available on Ysyk-Kul is at the oblast level, there are some data available at the rayon and community level, the so-called "village soviet," which is a collective of individual settlements i.e. villages or *auls*. Moreover, it is at this level that changes and individual actions in the landscape are visually most apparent.

Population Structure of Kyrgyzstan

The fact that Kyrgyzstan is viewed as a rural, remote, and stable country would suggest an age-sex structure that is characterized by the classic broad-based pyramid which tapers to a small number of elderly residents. The pyramid would be almost symmetrical. However, this is not the case. Figure 9.1 indicates the age-sex composition of the national population in 1989. Starting at the top, the 1989 census pyramid shows a marked reduction in males over the age of seventy. Kyrgyz males over seventy were born before 1929, and the size of this group reflects the effects of the First World War, the famines of 1917, and the civil war that continued into the 1920s in Kyrgyzstan. All of these events had a larger effect on males than females. Generally the higher death rate for males (lower life expectancy) is reflected in these data. The second reduced cohort is that of males aged 55-59. The forced collectivization and the deportations of the early 1930s applied mostly to males, and the resultant famines in 1931,1932 and 1933 further reduced overall birth rates in the 60-64 age cohort.

Low birth rates during the Second World War and the roughly equal proportion of males

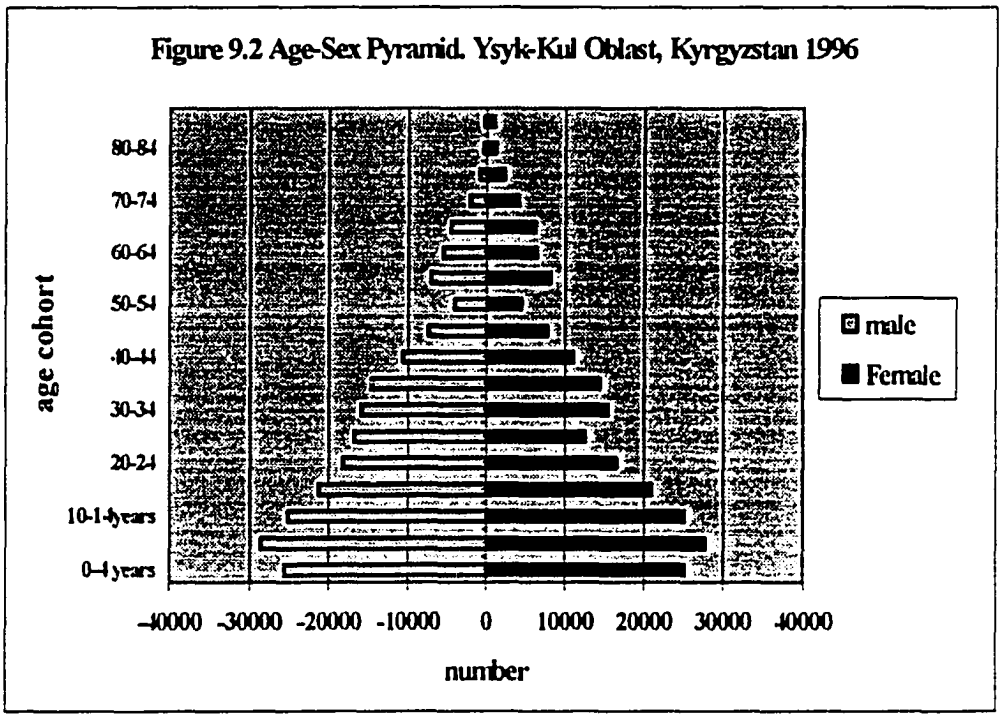
and females is reflected in the 45-49 age cohort. A baby boom immediately following the war is not reflected in the 40-44 age cohort. Rather the boom came later, peaking in 1960. As a result the 20-24 cohort is significantly smaller reflecting the lower birth rates of the late 1950s.



Source: Tsentral'nyy Statistcheskoye Upravleniye pri Sovete Ministrov SSR *Itogi Vsesoiuznaia perepis naselenia 1989 goda*

The pyramid reflects the classical shape of a developing country with a high birth rate since the early 1970s. The reported fertility decline and mortality increases since 1989 in Kyrgyzstan as a result of the adverse economic and political situation are not reflected in the1989 data, but are reflected in oblast data. The population structure of Kyrgyzstan reflects a disproportionate loss of

males in wars and Stalinist purges and the general trend throughout the former Soviet Union of a lower life expectancy for males than females.



Source: Natskomstat Kyrgyzskoy Respubliki *Demograticheskiy yezhegodnik Kyrgyzskoy Respubliki 1995*

Population Structure of Ysyk-Kul Oblast

Age-sex data at the oblast level are available for Ysyk-Kul Oblast for 1995. Much like the national age-sex distribution, the pyramid shows the high mortality for males during the war years (fifty-fifty-four age cohort) and the greater effects on males of the famines and purges prior to 1933 (Over sixty-five cohort). In contrast to the national data, the oblast data show a marked reduction in females twenty-five to twenty-nine. Why this would be so is unknown. More significantly, the under five cohort is dramatically reduced from previous years. Closer examination of the data available on an urban-rural basis indicates rural birth numbers have only dropped 6 percent

compared to the previous five-year period, but urban birth numbers have declined almost 20 percent. This would suggest that the Russian exodus, primarily from the towns, is reflected in the dramatic reduction in births while in the rural areas some exodus is occurring but higher Kyrgyz birth rates are compensating somewhat for this decline. An additional factor may be that in response to economic hardship, birth rates have generally declined.

At the aggregate level, and similar to national data, for the over sixty-five years of age cohort, only 3.9 percent of the population of Ysyk-Kul Oblast was male and over sixty-five years of age, while 7.1 percent of the population was female and over sixty five years of age. There were 157,500 persons under fourteen years of age (37.5 percent of the oblast population of 420,000), leaving a working-age population of 214,000 or 51 percent of the oblast population. This percentage is comparable to more developed nations in North America and Europe. However, Kyrgyzstan population growth will be influenced more by higher natural increases than by an increasingly aging population. In 1995 crude birth rates and crude death rates were 23.0 and 9.1 per thousand respectively giving a natural increase of 13.9 per thousand and an average annual population growth rate of 1.4 percent per annum. However, actual population growth has been significantly lower as a result of out-migration of Slavs. Much like the rest of Kyrgyzstan, oblast figures show an out-migration of 15,100 persons in 1995 and an in-migration of only 8,100 persons (See Chapter two). As a result, actual population growth is now approximately 0.4 percent per annum. This magnitude of migration probably cannot be maintained, and population growth in the order of 1-2 percent per year might be expected in the future.

Population distribution

As has been previously seen in respect to the historic development of the rural areas, Ysyk-Kul is characterized by a large rural population, the growth of which has been sustained by large natural

increases. The population of urban-type settlements has grown also, primarily as a result of excess rural population migrating to the cities.

Table 9.1: Rural-Urban Population, Ysyk-Kul Oblast, Kyrgyzstan, 1970-1996

Year	Ysyk-Kul Oblast Total Population		Rural Population Ysyk-Kul Oblast		Urban Population (Karakol & Balakchy)	
	Number('000's)	Growth rate p.a.	number	% of Oblast	% of Oblast	Number
1970	311,900	N/A	223,300	71.6%	28.4%	88,600
1989	355,400	1.3%	248,100	69.8%	30.2%	107,300
1990	418,100	1.6%	283,100	67.7%	32.3%	135,000
1995	424,100	1.4%	289,800	68.3%	31.6%	134,200
1996	427,100	0.4%	291,900	68.3%	31.6%	135,200

Source: Issyk-Kul Regional Economic Strategy, Goscominvest 1996

At the rayon level, population is spread generally evenly throughout the oblast. The two northernmost rayons of Issyk-Kul and Tyup have the highest population densities. In Issyk-Kul the higher density is a result of a limited amount of good agricultural land, and in Tyup it is a result of the lack of large pasture areas. The southern rayons exhibit lower population densities, primarily because the large pasture areas in the south contain only a few remote villages. If figures were recorded on arable land only, populations would be much higher in the southern rayons but population densities would not be considered high, except in the urban areas.

Table 9.2: Population densities 1996, Ysyk-Kul Oblast, Kyrgyzstan, by rayon.

Rayon	Area in Sq. km	Townships	Villages	Population 1995	Pop Density. (Persons per Sq. km.)
Ak-Suu	10,100	-	44	59,200	5.9
Djeti-Oguz	14,200	-	45	72,400	5.1
Ton	6,000	1	32	52,500	7.4
Issyk-Kul	4,800	1	30	71,100	27.1
Tyup	2,100	1	38	57,000	14.8
Cities					
Karakol	48	2		68,000	1,416.7
Balakchy	21	1		46,900	2,233.3
TOTAL OBLAST	43,100	6	189	427,100	9.9

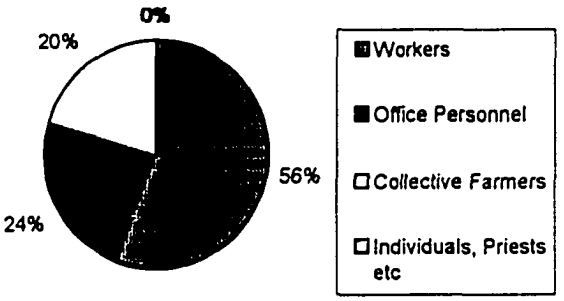
Source: Issyk-Kul Regional Economic Strategy, Goscominvest 1996

Farm Employment

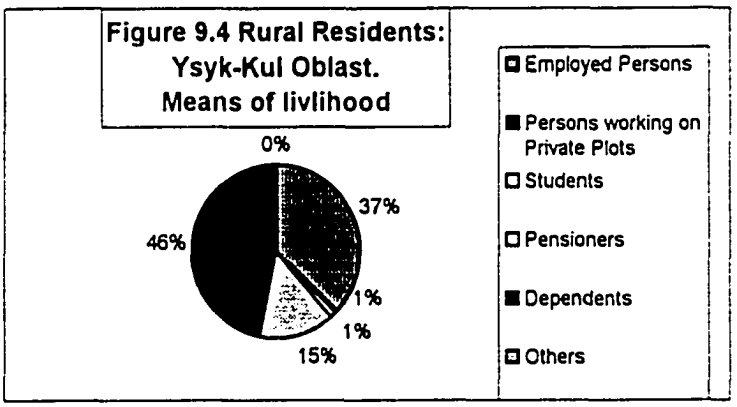
About half the population in Ysyk-Kul Oblast is of working age. Of this percentage, the proportion of the population engaged in agriculture has declined only slightly throughout the last fifty years, from 37 percent in 1939 to 32 percent in 1990. This proportion is considerably higher than countries such as the United States and the United Kingdom each with 3 percent, and is comparable to other such developing nations as Ecuador, Peru and former Eastern Bloc countries. Kyrgyzstan has the lowest percentage of its working population in agriculture of all the lower-income economies as classified by the World Bank (World Development Report 1996). This proportion of agricultural workers reflects the lack of industrialization in the oblast and in the country as a whole. Also, as will be discussed below, not only were there no "pull" factors driving urbanization, there were also significant incentives to remain in the rural areas.

In Figure 9.1 the higher number of retired persons (15 percent), compared with less than 10 percent in western nations, is indicated. In addition, in figure 9.3, the 25 percent of individuals working in Ysyk-Kul that are described as "office personnel", indicates the large number of government employees, reflecting the centralized planning system in place in 1989. Interestingly, the percentage of government employees is comparable to the percentage in the United States and the United Kingdom and other Western nations. In Figure 9.4 the employment characteristics of the rural areas alone is indicated. It indicates the large number of senior citizens and the large number (46 percent) of dependents, primarily children, in the rural areas of Ysyk-Kul. By 1996, the data base had changed considerably as statistical authorities were recognizing that, as a result of the change to a market economy, a significant part of the labor force was unemployed. In July 1996, the average unemployment in Ysyk-Kul was almost 7 percent.

Figure 9.3.
Social Composition of Labour Force, Ysyk-Kul Oblast, 1989



Source: Tsentral'nyy Statistcheskoye Upravleniye pri Sovete Ministrov SSR *Itogi Vsesoiuznaia perepis naselenia 1989 goda*



Source: Tsentral'nyy Statistcheskoye Upravleniye pri Sovete Ministrov SSR *Itogi Vsesoiuznaia perepis naselenia 1989 goda*

Table 9.3: Employment Ysyk-Kul Oblast, July 1996.

Rayon	Population	Workforce	% in Workforce	Unemployed	% unemployment
Ak-Suu	59,200	31,476	53%	1,530	4.9%
Djeti-Oguz	72,400	33,515	46%	1,507	4.5%
Ton	52,500	24,410	46%	1,498	6.1%
Issyk-Kul	71,100	24,969	35%	2,295	9.2%
Tyup	57,000	27,435	48%	1,243	4.5%
Cities					
Karakol	68,000	33,728	49%	2,495	7.4%
Balakchy	46,900	33,227	70%	3,392	10.2%
TOTAL OBLAST	427,100	208,782	48.8%	13,960	6.7%

Source: Issyk-Kul Regional Economic Strategy, Goscominvest 1996

However, it is generally agreed that the official figures understate the case. Many industrial enterprises have sent their workers home without pay on extended leaves of absence. Authorities believe in the urban areas of Karakol and Balakchy the true figure is probably 25 percent unemployed. Furthermore, many professional people are working without pay (in most oblast schools, teachers have not been paid for three to six months) and those working on collective type farms would be considered underemployed in most cases. The only positive feature of this grave employment situation is that many are working their private plots and not reporting this activity as part of the official employment sector. Data from 1994 indicates the transition from a collective form of labor, such as existed up to 1991 and the evolution of a labor force oriented to a privatized land base and a market economy.

Table 9.4. Average Number of Agricultural Workers Employed in Various Enterprise Types, Kyrgyzstan, 1 January 1994.

	Djalal- Abad	Ysyk-Kul	Naryn	Osh	Talas	Chui	Kyrgyz Republic
Peasant and Private Farms	6.3	3.2	5.2	8.3	3.9	3.5	4.6
Association of Peasant Farms	51	933	997	a	172	988	475
Cooperatives	35	50	60	276	87	55	121
State and Collective Farms	A	A	a	a	a	a	1,120
Small State farms	25	A	a	a	3.7	25	24
Joint-Stock Companies	1,500	A	a	1,611	A	a	1,593

a = No data available

Source: MAF and State Statistical Committee

These data reflect heavy employment in state supported enterprises like the Sovkhoz and the newly constituted aggregations of farmers that were formed from the Kolkhoz. More significantly, it indicates the dramatically fewer number of workers required on peasant and private farms. The Land Tenure center (1994) has extended this analysis to indicate that, with the current amount of arable land worked by each type of enterprise, small scale farms require fewer workers per hectare than agglomerated farm enterprises. Should this be true, there will be a larger and larger displaced rural work force as privatization of farmland continues.

Farm Incomes and Productivity

In the 1960s and 1970s greater and greater emphasis was placed on agriculture in Central Asia as a resource contribution to the Soviet economy. In order to increase production, agricultural commodity procurement prices from the state rose and social benefits increased. There was a commensurate increase in agricultural sector wages but there was no commensurate increase in productivity.

Table 9.5: Agricultural worker productivity, Kyrgyzstan 1965-1988

Year		1965	1970	1975	1980	1985	1986	1987	1988
Rate of Growth of Productivity of Agricultural Worker (1965 = 100)		120		125	128	118	128	131	138
Wages as % of USSR	Kolkhoz	135.3	110.7	108.7	100.0	104.6	N/A	N/A	94.4
av.	Sovkhoz	86.7	83.2	88.2	82.7	82.1	N/A	N/A	78.6

Source: USSR Gosudarstvennyy Komitet po statistike 1989 c Statisticheskiy Sbornik Moscow: Finansy i statistika

Indeed, Bushman (1986 in Dienes p 139) has shown that for each 1percent rise in labor productivity there was a staggering 8.7 percent increase in wages. Furthermore, in the period 1981-

1985 labor productivity fell by 5.5 percent. The result of this economic policy was to keep rural populations high and discourage out-migration to the cities of both Central Asia and within Kyrgyzstan.

There was a further incentive keeping rural populations high. Private agriculture in the former Soviet Union was a significant element in the rural economy.[1] In the 1980s, estimates [2] of its size ranged from 4 percent of the arable land area in Uzbekistan, through 5 percent and up to 15 percent in Kyrgyzstan. However, this land produced 55 percent of the income of collective farms nationally and was believed to be significantly higher in Central Asia. Data from Uzbekistan (Kalugina Z.I and Antonova T.P 1984 quoted in Dienes 1987 p.141) indicate that in 1980 private plots produced almost half of the vegetables grown, half of the melons, and 63 percent of all fruit, while 54 percent of all beef cattle and 68.5 percent of all milk cows were kept on private plots. The contribution of these plots to milk and meat production was 61 percent and 45 percent respectively.

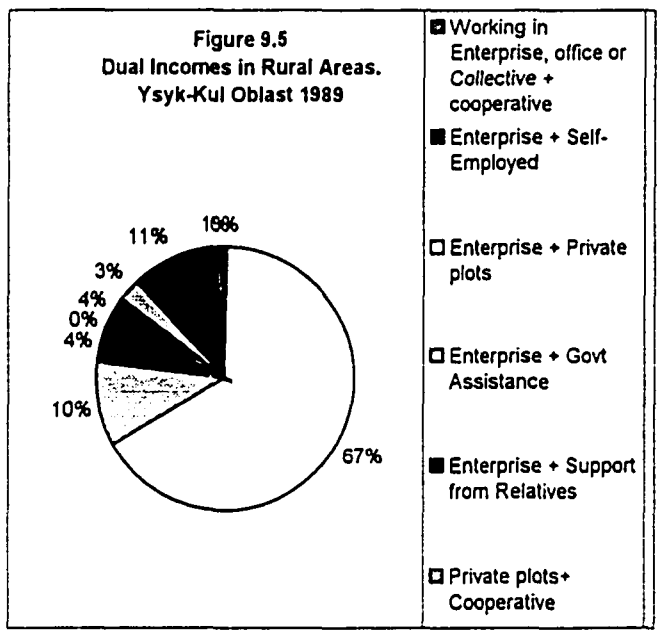
Table 9.6: Size and Value of Private Plots in Kyrgyzstan, 1961-1987.

	Av. Yearly value of Plot Production			Average Plot size (In ha.)			Livestock per plot	
YEAR	1961-5	1986-88	% change	1965	1987	% change	1966	1989
	651	1,260	194	0.146	0.148	1	Cattle 0.62	0.76
							Sheep 1.31	3.22

Source: Craumer in Lewis 1992. P.169

These percentages are believed to be common throughout Kyrgyzstan. Figure 9.5 indicates that in 1989 over two-thirds of the workers in Ysyk-Kul oblast cultivated private plots in addition to having other means of livelihood. The importance of these private plots to the economy cannot be overrstated. Labor productivity in the private agriculture sector between 1969 and 1978 per unit of gross output was 66 percent higher than the official sector, and personal income exceeded that

of income obtained on the collective farms by 48 percent (Bushman 1986:78). The most telling fact was that a study in 1983 suggested that rural incomes in Central Asia were higher than urban incomes (Ziuzin in Dienes 1987:141).



Source: Tsentral'nyy Statistcheskoye Upravleniye pri Sovete Ministrov SSR *Itogi Vsesoiuznaia perepis naselenia 1989 goda*

Thus it was, that on the eve of independence, there were almost three workers per hectare on state and collective farms (Craumer 1992 and See Table 9.6 below). Even with the privatization of land, the Land Tenure Center (1995) has calculated that in 1994 there were still approximately two workers per hectare in rural areas. This is a large figure in comparison with other rural areas in the world and a figure that would be dramatically affected by the decollectivisation and privatization of the land base following 1991.

Table 9.7: Sown area per Kolkhoz and Sovkhoz worker in Kyrgyzstan

	1965	1970	1975	1980	1985	1987
Kolkhoz	3.27	3.49	3.40	3.13	2.74	2.90
Sovkhoz	3.21	3.21	2.79	2.86	2.68	2.79

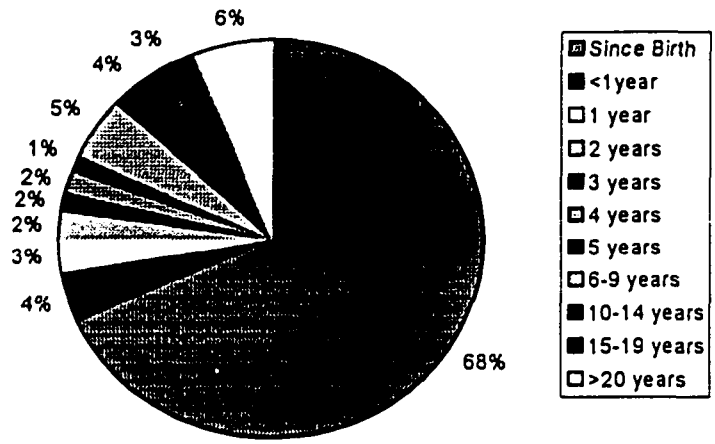
Source: Craumer in Lewis 1992 pg. 156

With the coming of a market economy, the dissolution of the state supported wage system, and the general economic collapse, wage levels fell dramatically. In Kyrgyzstan, the average wage level fell 63 percent between 1991 and 1993, and the real value of the minimum wage fell 83 percent. By August 1994, the average wage in Ysyk-Kul oblast was 201 som per month ($20.00) up from 60 som ($6.00) one year earlier, and by June 1996, the average monthly wage was 413.6 som ($24.00). (State Statistical Agency 1996). This was still more than 25 percent lower than the national average and 50 percent lower than wages in the capital Bishkek. As a result the minimum family consumption budget of 471.1 som meant that expenditures exceeded income by almost 25 percent. Thus, there was now a significant incentive for excess population to leave the rural areas and the oblast, and seek employment in the cities.

Farm Populations

In 1989 the population in the rural areas was relatively static. Figure 9.6 indicates that almost three quarters of rural residents had lived in the rural area since birth or longer than twenty years. In-migration was only two to three percent per year. In contrast Figure 9.7 indicates the residents of the urban areas are mostly newcomers with only 48 percent either born in the city or having resided there more than twenty years.

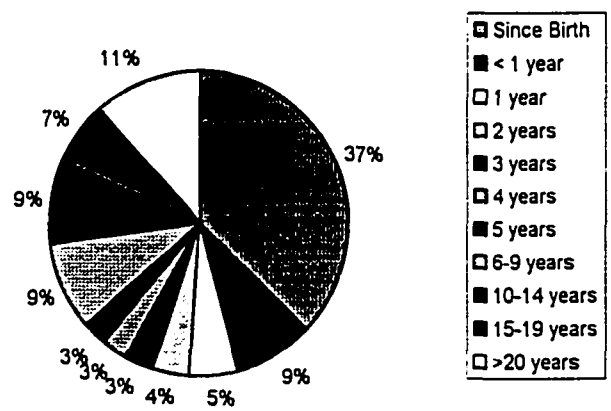
Figure 9.6 Migration in Ysyk-Kul Oblast. Length of Residence in current Rural location,1989



Source: Tsentral'nyy Statistcheskoye Upravleniye pri Sovete Ministrov SSR *Itogi Vsesoiuznaia perepis naselenia 1989 goda*

Figure 9.7

Migration in Ysyk-Kul Oblast: Length of residence in current urban location 1989



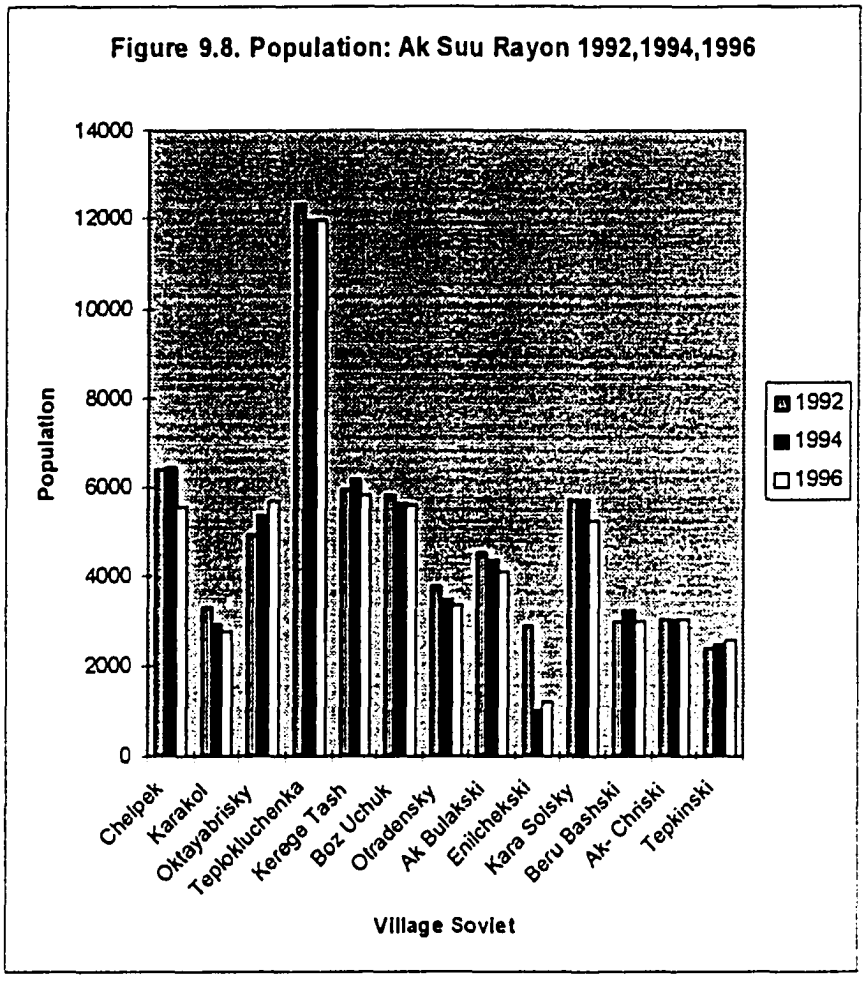
Source: Tsentral'nyy Statistcheskoye Upravleniye pri Sovete Ministrov SSR *Itogi Vsesoiuznaia perepis naselenia 1989 goda*

More significantly, approximately 10 percent had migrated into the city in 1988, and approximately 25 percent had migrated in the previous five years, the period between 1985 and 1989 when controls over the agricultural economy were being increasingly relaxed by the Gorbachov regime. With an oOblast population growth rate of 1.5 percent, it can be assumed that urban-rural migration was occurring in the years immediately preceding independence.

With the coming of the market economy there was a change in the dynamics influencing rural-urban population migration. The push-pull factors of the prospect of no further state procurements for farm produce leading to inadequate farm income and the prospect of better paying employment in the urban areas created sufficient incentive to leave rural areas for the cities. The question then becomes: is there a migration off the farms and from the rural villages into the urban areas? In addition, it necessitates asking whether migration has lessened or increased in the years following independence?

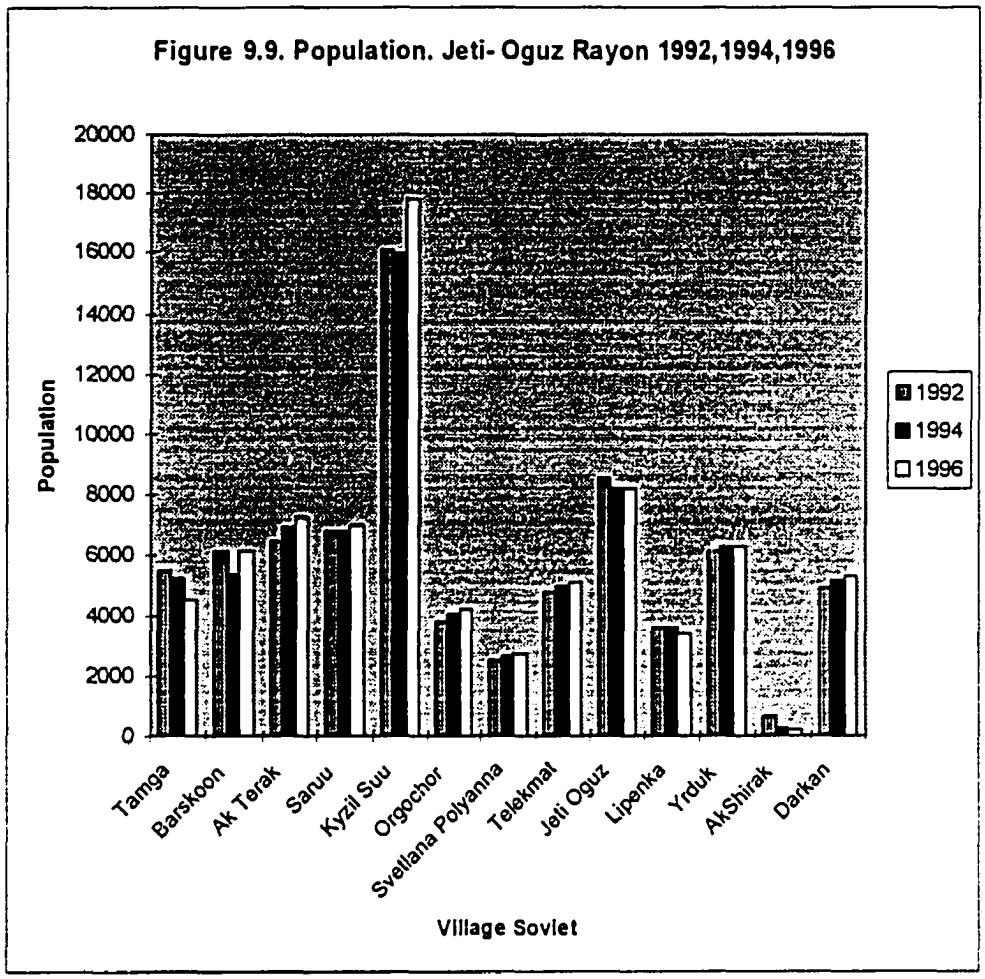
To investigate these questions, demographic data from the years 1992, 1994 and 1996 were consulted for every village soviet in Ysyk-Kul Oblast.

Figure 9.8 indicates the change in population in Ak-Suu Rayon, that rayon adjoining Karakol on the west. In Ak-Suu Rayon there has been a general decline in population in the four years since independence. In ten of the thirteen village soviets, population has declined. Most of the village soviets within a ten-mile radius of Karakol have lost between 8 percent and 13 percent of their population, presumably to the cities. The most marked decline has been in the communities in the interior valleys, far removed from Karakol. Enilchek, a former mining community of 2600 persons, has lost 60 percent of its population in four years.



Source: Unpublished Oblast Data 1992,1994,1996.

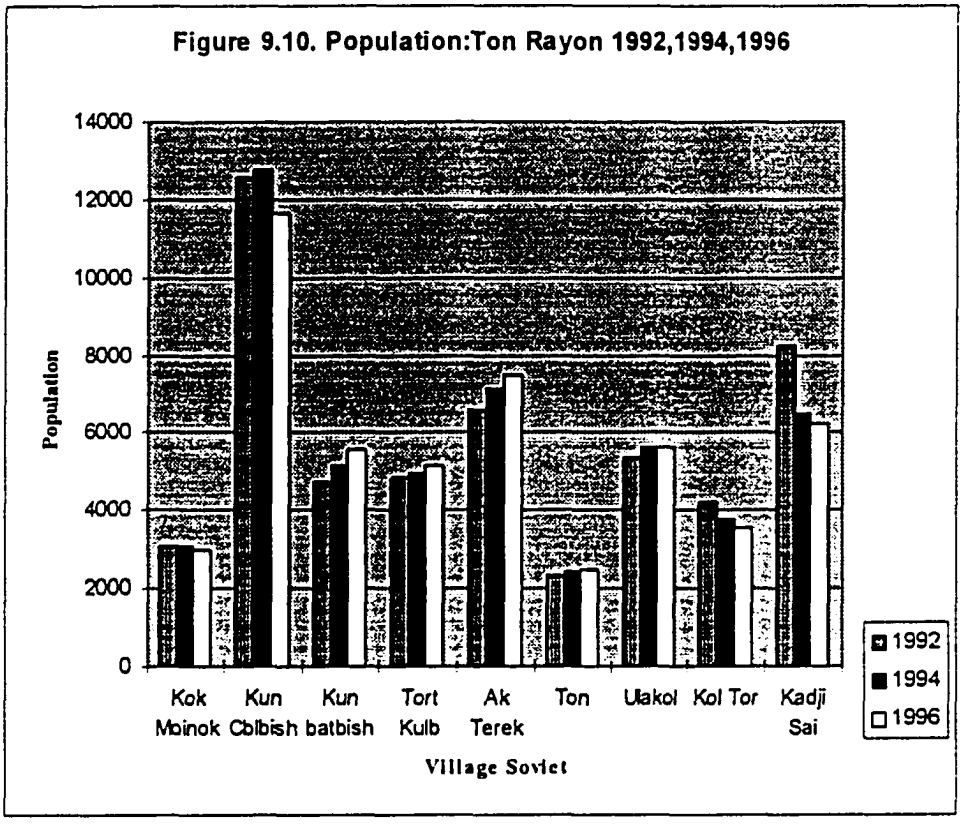
Of the communities that have gained population one, Oktobradensky, is a former specialized sovkhoz producing seeds and medicinal herbs. It was one of the last villages to be privatized and the residents may have assumed some sort of security of employment over the last four years. The other community gaining population is the former Dzergalen Kolkhoz, some twenty miles north of Karakol, and a village that permitted former residents to return to claim land on privatization. Thus it appears that in the villages of Ak Suu Rayon rural-urban migration is occurring in significant numbers.



Source: Unpublished Oblast data 1992-1994,1996

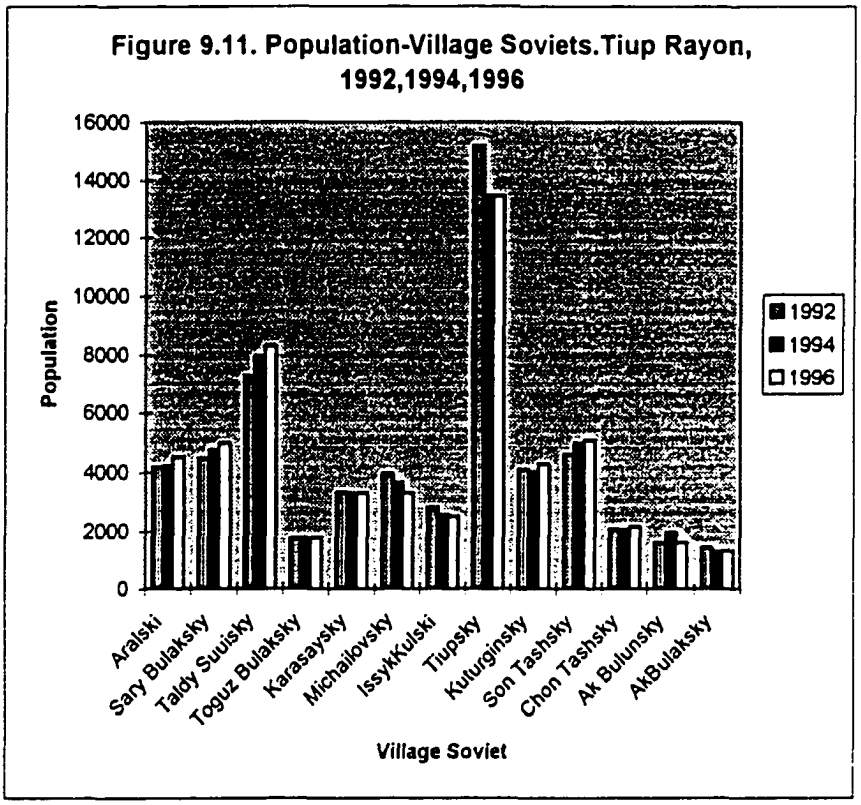
The other rayon bordering the city of Karakol, Djeti Oguz appears to be more stable. Population here has grown in nine of the thirteen village soviets. The growth rates have been in the order of 5 percent-20 percent. However, even within the rayon spatial differences occur. The predominantly Kyrgyz villages in the south-west of the rayon have all gained population, presumably as a result of higher natural increase. The largest center in the rayon and the seat of rayon government is Kyzil Suu, formerly Pokrovka which has grown 11 percent in four years.The four settlements that

have declined in population appear to have done so for purely local reasons. Tamga was the site of a former military sanitarium that, with the withdrawal of Russian troops from the former republics, is now very little used. In addition, the predominantly Russian ethnic population of Tamga followed the military, creating a 33 percent decline in population. Similarly, Lipenka was the site of the residences for many of the military personnel at the Koy Sary torpedo testing facility. Population was stable up to 1994, but the closure of the base in 1993 is reflected in the 6 percent decline in population between 1994 and 1996. Ak Shirak is located in the interior of the rayon and, similar to the case of Enilchek in Ak Suu Rayon, has witnessed a dramatic fall in population as residents could now migrate from the harsh climate of the interior valleys. The community of Jeti-Oguz was also the site of a sanitarium, and it too has been unable to attract tourists since independence with a consequent loss of staff and their families. Another anomaly in this general picture is the stability, actually a small gain, in population of the settlements of Yrduk. Experience from Ak Suu rayon would suggest that owing to its proximity to Karakol of some six miles, there would be significant depopulation. However residents who are primarily minority ethnic groups, Dungan and Uighur, openly express the need and desire to preserve cultural identity and solidarity as this might be expected in times of ethnic and economic uncertainty. Population change in Ton Rayon presents considerably more difficulty in interpreting the change. Four villages have declined in population since 1992 and five have increased population. Of the nine, only the precipitous decline in population in Kadji Sai of 25 percent is immediately explicable. Here the uranium ore processing plant is in the process of being closed, and workers reduced, with the concomitant reduction in the labor force.



Source: Unpublished Oblast data 1992,1994,1996.

The settlement at Kok Moinok is close to Balakchy on marginal land, and hence migration of youth to the city might be expected. Of the other settlements, two in the interior valleys, Kun Batbish and Tort Kulb, and two on the lakeshore, Ulakol and Ak Terek are gaining population. Ethnic Kyrgyz dominate all of these communities and the rate of natural increase should, therefore, be high. Two settlements, Kol Tor and Bokonbaevo, are declining in population. Bokonbaevo, a large settlement in Soviet times, may be experiencing Russian out-migration, while in Kol Tor only two of the three villages that make up the village soviet are losing population (400 each).



Source: Unpublished Oblast Data 1992,1994,1996.

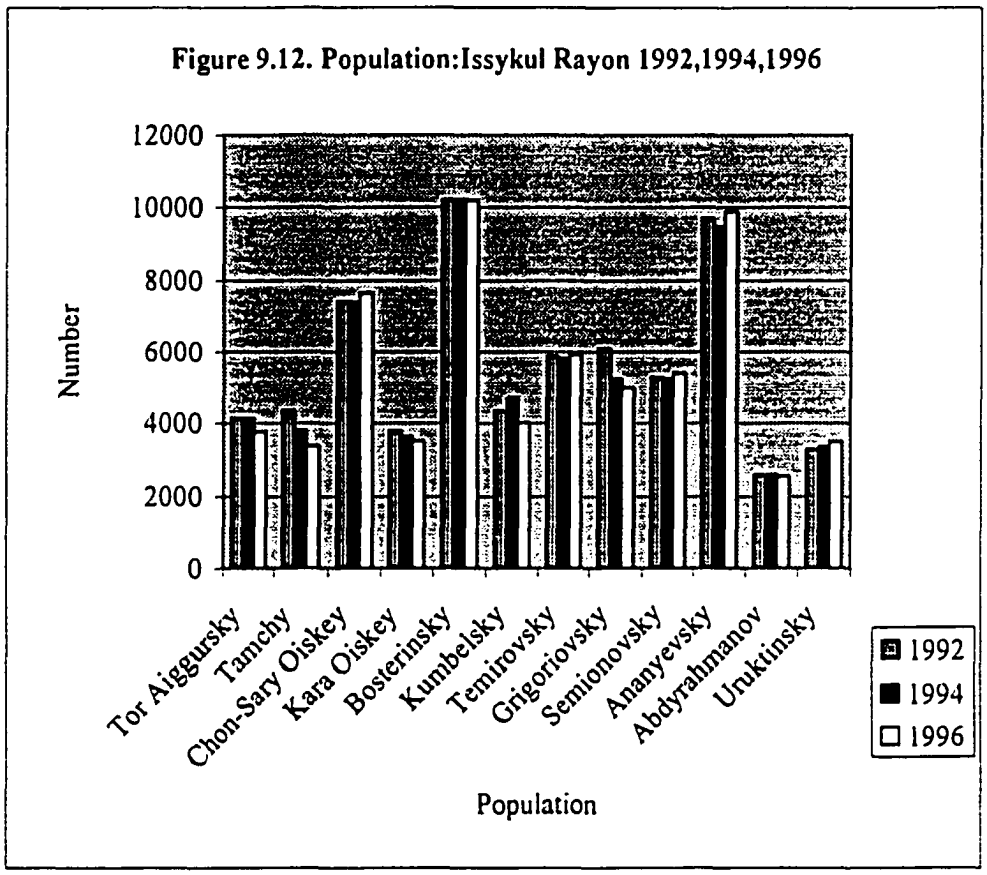
Population change in Tyup Rayon over the past four years is such that six communities gained population; three exhibited little or no change and four lost population. Of the four that lost population, Michailovka and Issyk-Kul were heavily dependent on the military and port facilities at Pristin Prezervalsk. The port and military camp are now closed and in a state of decay. Frunze Collective also known as Ak Bulunsky and Ak Bulak are close to the settlement of Tyup, and there is evidence that some of their former population has moved into the city and now travel out to their farm on a daily basis. Of the six settlements that have gained population, all are predominantly Kyrgyz, are located on extensive arable areas, and as such, might be expected to support larger population upon the decollectivization of the land. The communities that are stable are smaller (less than 2000 people) and located on the fringes of the rayon, away from the influences of the larger

settlements. The most surprising feature is the drop of 13 percent in the population of the community of Tyup. This can be attributable in large part to the decline in the industrial sector in the city, particularly the agri-processing industries, the machinery works, and the cement plant. Output in these industries has declined between 50 percent and 80 percent in the five years since independence, and the resultant loss of employment is reflected in the population change.

Finally, the most westerly rayon, Issyk-Kul, displays spatial patterns of population change much like the other rayons. Those communities close to the city of Balakchy, Tor Aigursky and Tamchy, are suffering population losses as population migrates to the immediately proximate city. In addition, those settlements on the dryer western areas of the rayon also seem to be experiencing population loss, as the ability to make a living either by subsistence agriculture or as a service center is more difficult. In contrast those communities on the large fertile alluvial fan east of Cholpon Ata, Ananyevo, Temirovsky, Semionovsky, and in the wetter east are either stable or growing in size suggesting that any out-migration is balanced by natural increase and/or in-migration of former residents reclaiming land. The only exception is the settlement of Grigorievka that has lost considerable population, the reasons for which are unknown.

Population Changes Village Soviets 1992,1994,1996

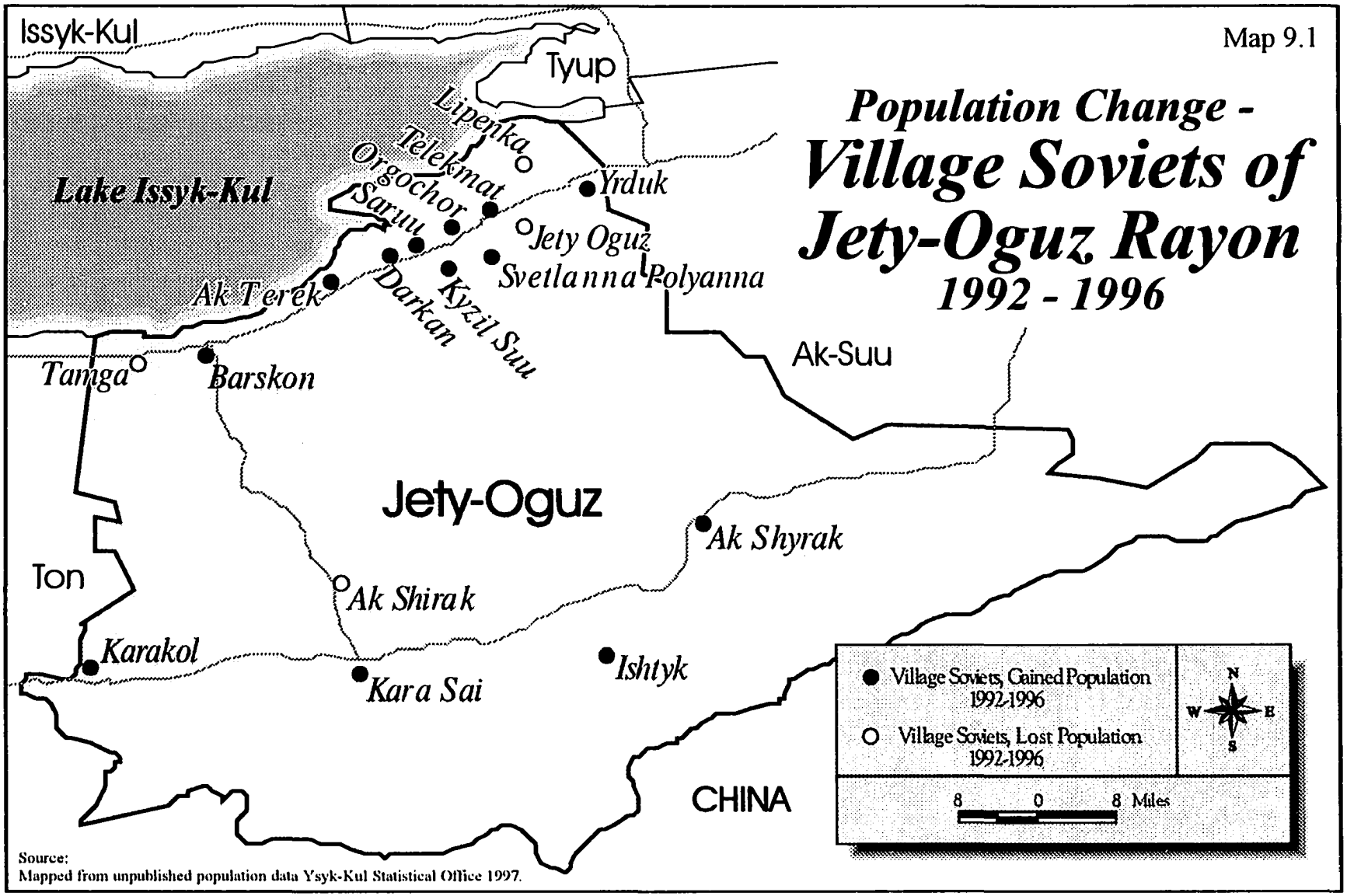
A understanding of rural-urban migration is central to an understanding of the processes at work in rural areas, and the future form and nature of the Kyrgyz rural sector. In the case of the former Soviet Union, the requirement for registration in the place of work and the desire to keep labor in rural areas meant that migration, while present, could be theoretically controlled and thus managed.[3] With independence, the removal of these controls meant that labor was free to move and many of the determinants that condition spatial movement of population could come into play.



Source: Unpublished Oblast Data 1992,1994,1996.

In classical development theory (Todero 1996) the movement of young male labor off the farm and into the urban areas is the most marked feature of developing economies.[4] Acting as a brake to this trend in Kyrgyzstan would be the allocation of land to farm households, providing the means of sustenance and employment, and therefore providing a significant deterrent to rural-urban

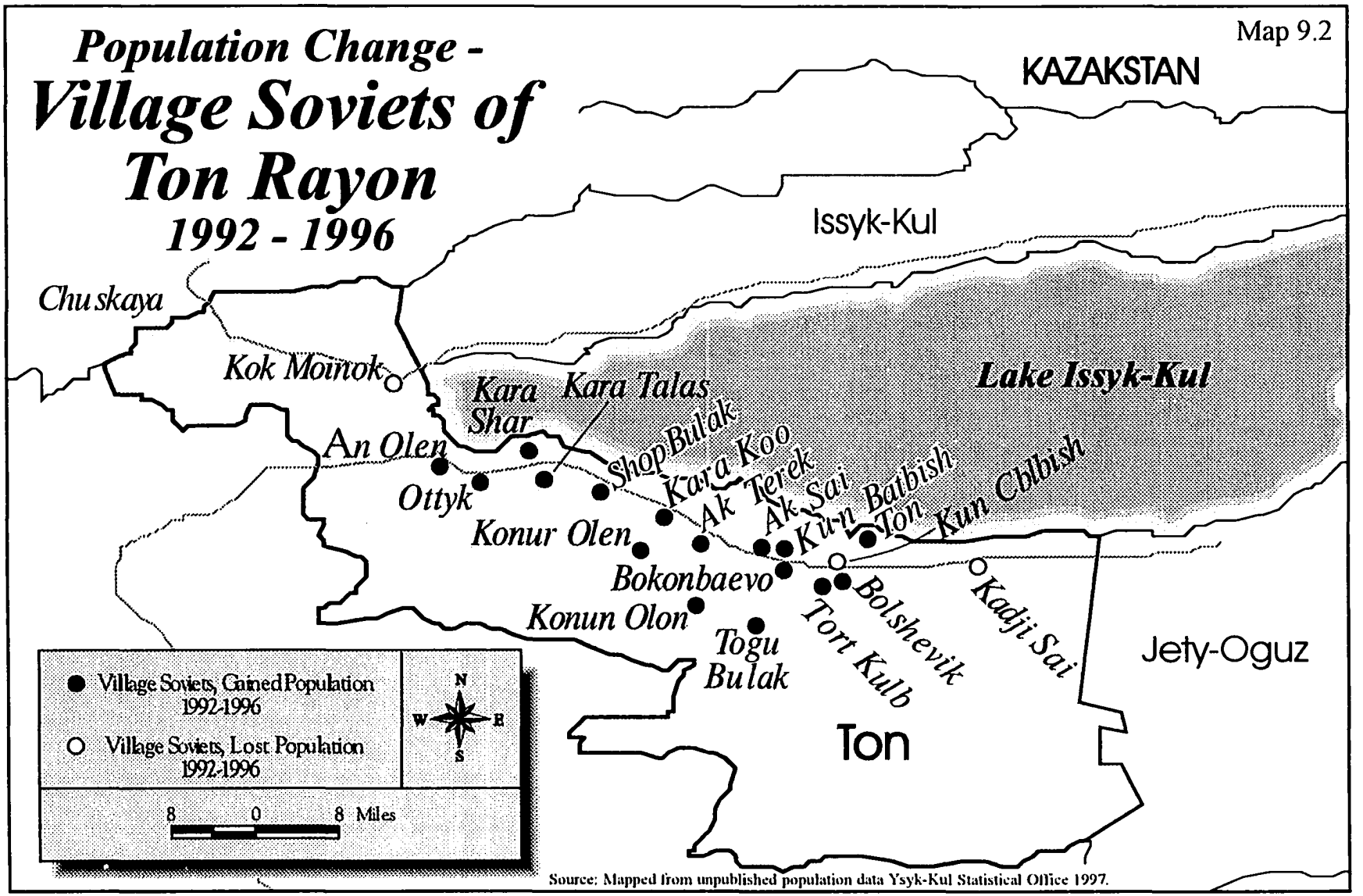
Map 9.1



Source:
Mapped from unpublished population data Ysyk-Kul Statistical Office 1997.

Map 9.2

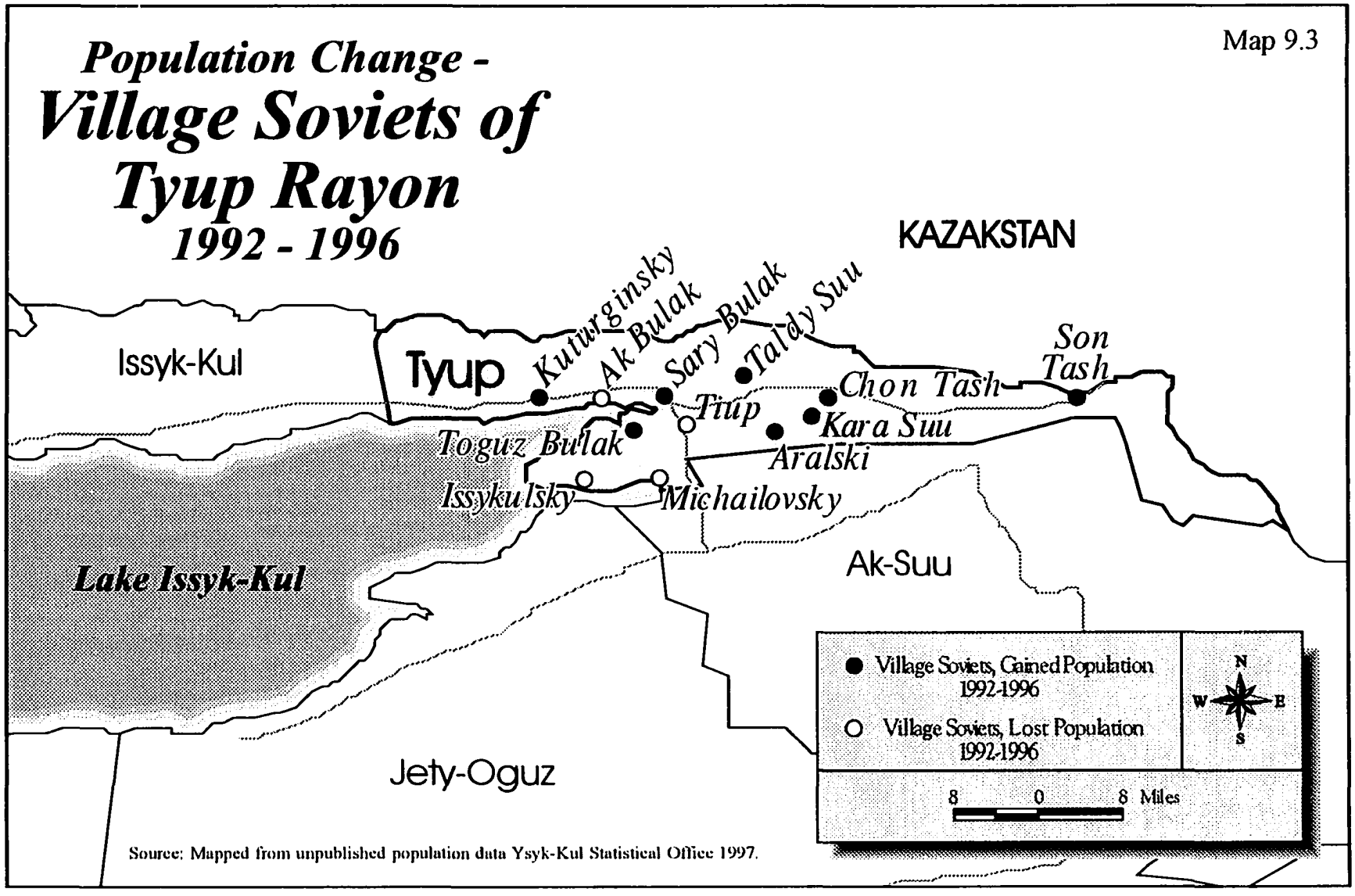
Population Change - Village Soviets of Ton Rayon 1992 - 1996



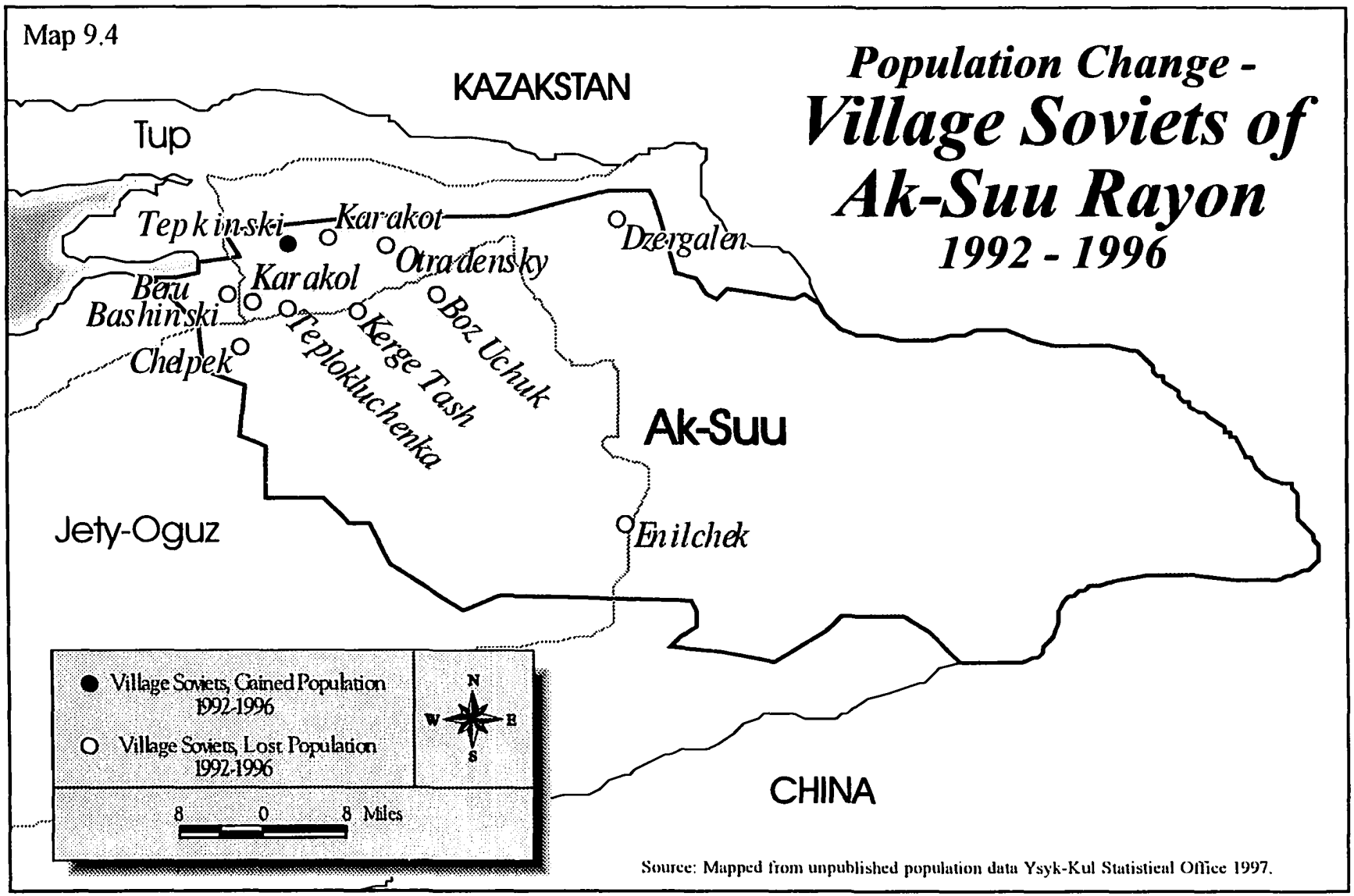
Source: Mapped from unpublished population data Ysyk-Kul Statistical Office 1997.

Map 9.3

Population Change - Village Soviets of Tyup Rayon 1992 - 1996

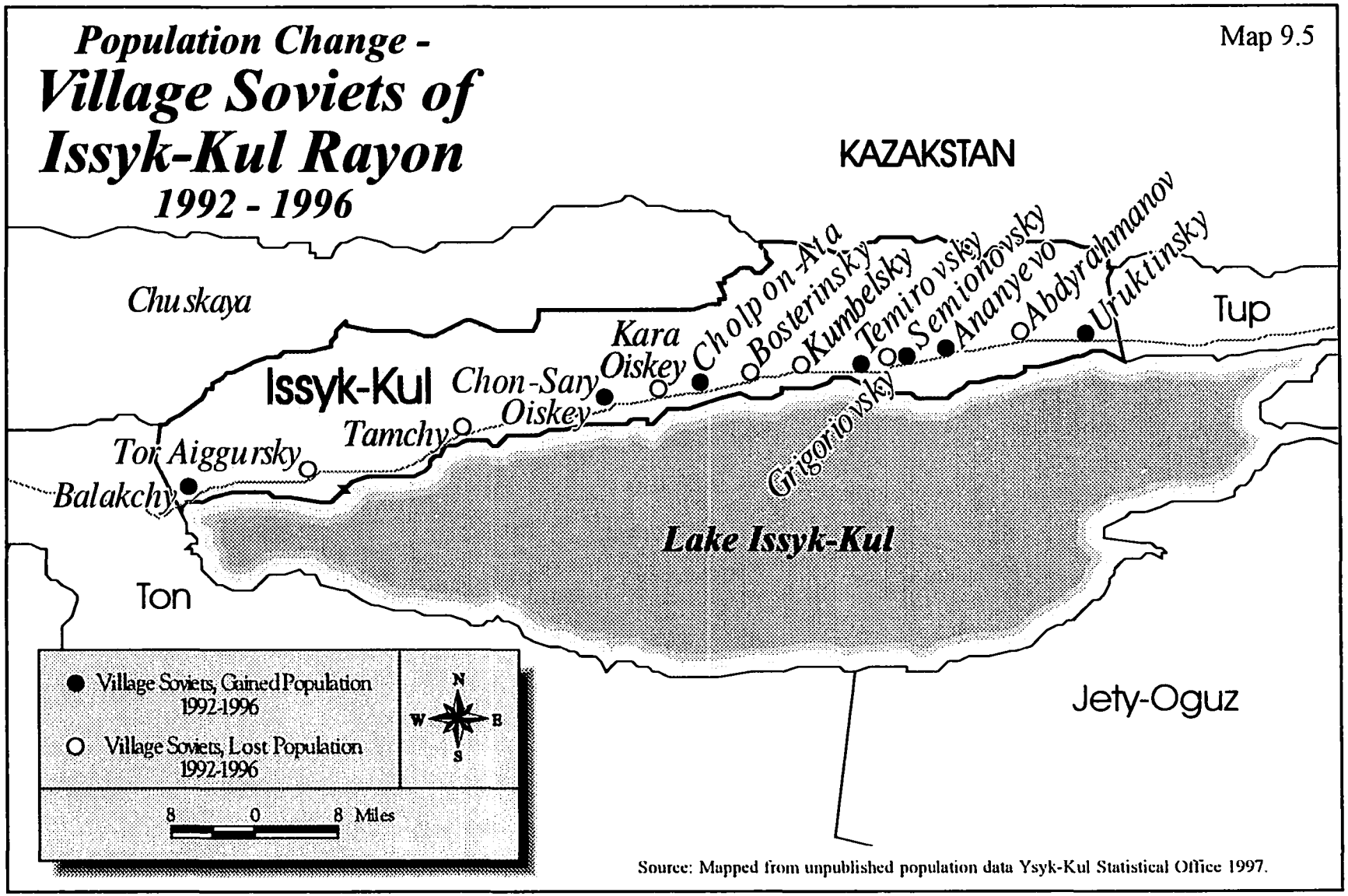


Source: Mapped from unpublished population data Ysyk-Kul Statistical Office 1997.


Map 9.4
Population Change -
Village Soviets of
Ak-Suu Rayon
1992 - 1996
KAZAKSTAN
Tup
Tepkinski
Karakot
Otradensky
Dzergalen
Beru
Karakol
Bashinski
Kerge Tash
Boz Uchuk
Chelpek
Teplokluchenka
Ak-Suu
Jety-Oguz
Enilchek
CHINA
Village Soviets, Gained Population 1992-1996
Village Soviets, Lost Population 1992-1996
N
W
E
S
8 0 8 Miles
Source: Mapped from unpublished population data Ysyk-Kul Statistical Office 1997.

Map 9.5

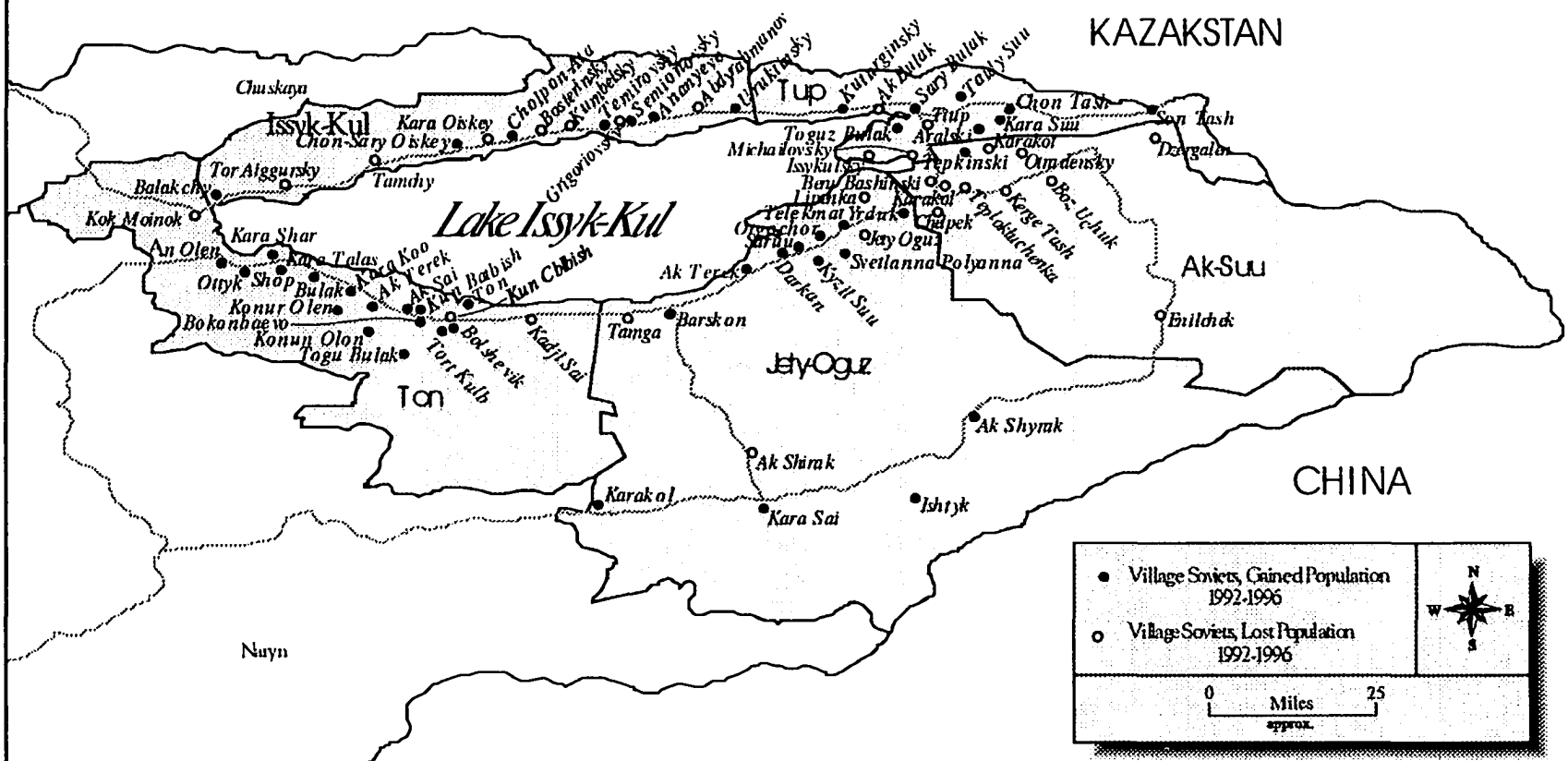
Population Change - Village Soviets of Issyk-Kul Rayon 1992 - 1996



Source: Mapped from unpublished population data Ysyk-Kul Statistical Office 1997.

Map 9.6

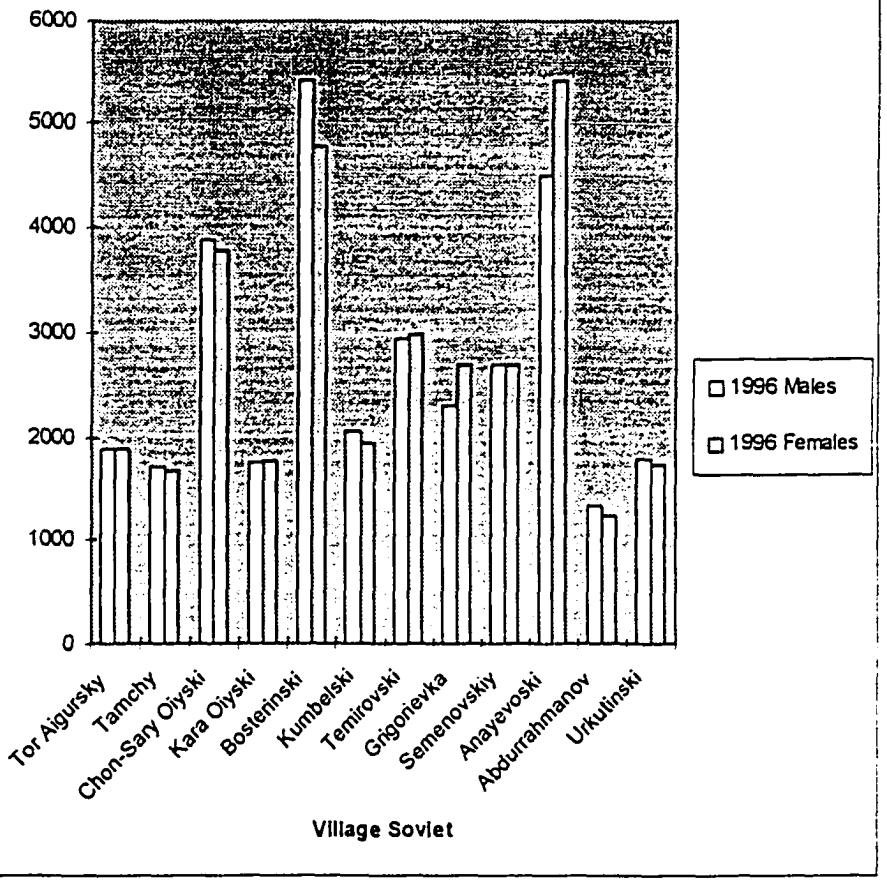
Constituent Rayons and Village Soviets of Yssyk-Kul Oblast, Kyrgyzstan



Source: Mapped from unpublished population data Ysyk-Kul Statistical Office 1997.

migration. Population by gender is available for the years 1992 and 1996 for villages in three Rayons, Ton, Djeti Oguz and Issyk-Kul. Following is an analysis of these data to ascertain whether the process of male out-migration is occurring.

Figure 9.13. Population by Gender; Issykul Rayon 1996



Source: Unpublished Oblast Data 1996.

In 1996 in Ton Rayon the proportion of men has declined more than that of women in only eight of thirty-three villages and only in the former mining center of Kadji Sai is the proportion significantly lower. In approximately twenty villages, the proportion of males to females is approximately equal and in five villages males outnumber females.

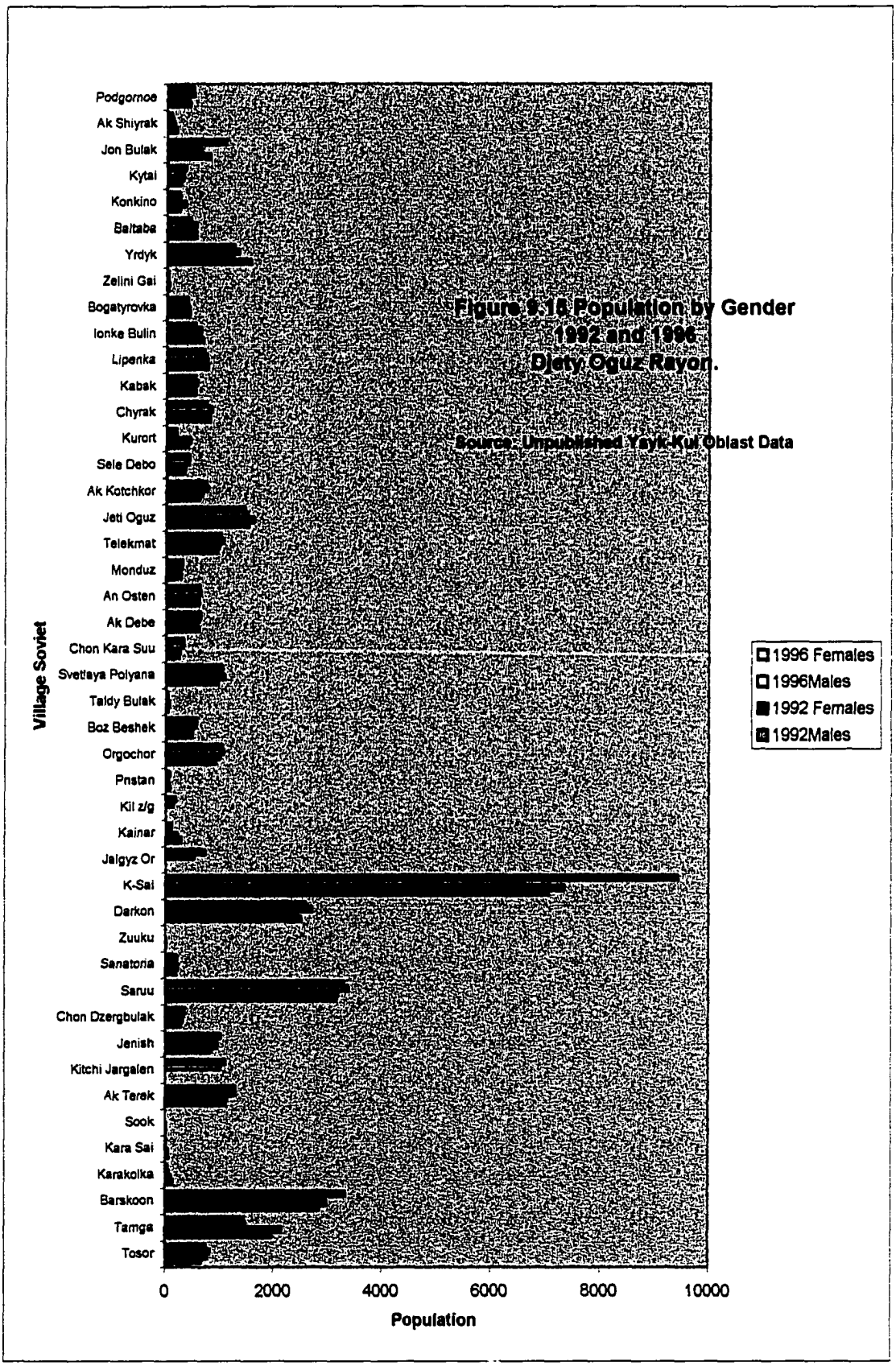


Figure 3.16 Population by Gender 1992 and 1996 Djety Oguz Rayon.

Source: Unpublished Yzyk-Kul Oblast Data

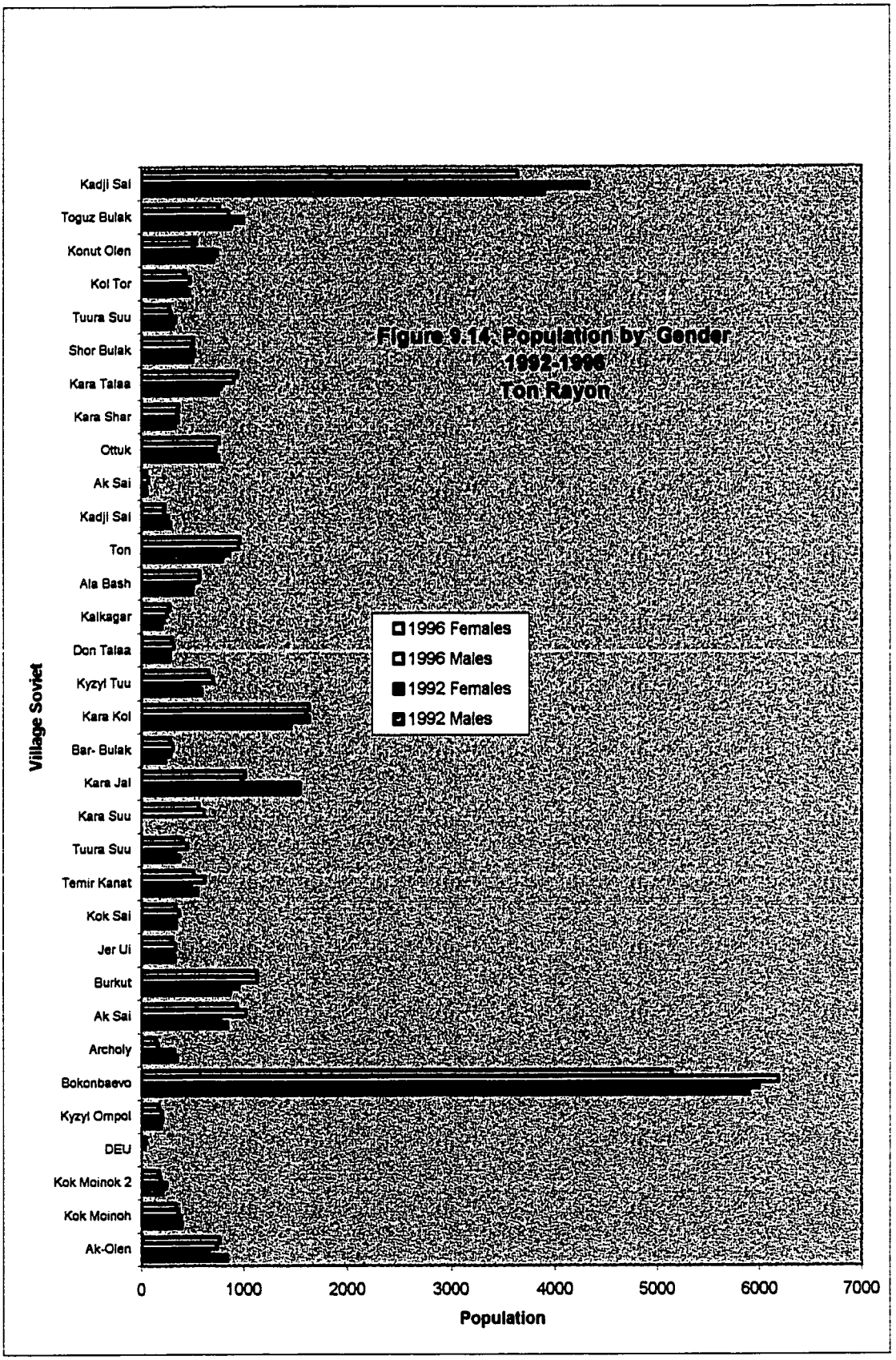


Figure 9.14: Population by Gender
1992-1996
Ton Rayon
Village Soviet
Kadji Sai
Toguz Bulak
Konut Olen
Kol Tor
Tuura Suu
Shor Bulak
Kara Talaa
Kara Shar
Ottuk
Ak Sai
Kadji Sai
Ton
Ala Bash
Kalkagar
Don Talaa
Kyzyl Tuu
Kara Kol
Bar- Bulak
Kara Jal
Kara Suu
Tuura Suu
Temir Kanat
Kok Sai
Jer Ui
Burkut
Ak Sai
Archoly
Bokonbaevo
Kyzyl Ompol
DEU
Kok Moinok 2
Kok Moinoh
Ak-Olen
1996 Females
1996 Males
1992 Females
1992 Males
0
1000
2000
3000
4000
5000
6000
7000
Population

In Djeti Oguz Rayon there appears to be a significant loss of males only in the larger center of Kyzil Suu.In all other villages, there is very little difference in the proportion of males to females.

Finally, in Issyk-Kul Rayon, in five villages females outnumber men, but it is only in the larger center of Ananyevo that females greatly outnumber men (by over 20 percent). In seven of twelve villages, males outnumber females but only in significant numbers in Bosterinski. The reasons for this variation within one oblast are not immediately apparent. It might be hypothesized that those villages granting land to fomer residents are those where the proportion of males to females remains equal. In contrast, those villages that divide land according to existing villagers would be seeing only limited in-migration and, with apparent economic stability once land has been apportioned, there would be the start of rural out-migration as households realize surplus labor.

Conclusion

Notwithstanding that the statistical evidence does not show a dramatic rural-urban population shift, the landscape and the comments from rural residents suggest that a transformation is occurring. From the data, it appears that the most marked rural depopulation is occurring in those centers in closest proximity to the two urban-type settlements of Karakol and Balakchy. Visual evidence to this effect is already beginning to accumulate in the smaller villages that were once sovkhoz or kolkhoz. In Sary Kumish, six miles from Balakchy, apartments lie empty and schools are closing for lack of students and teachers. Interviews in these villages reveal that the former residents have moved into the regional centers such as Balakchy, in the case of western communities such as Sary Kumish, or Karakol for eastern villages. Thirty miles from the urban centers seems the approximate radius of this rural depopulation. What cannot be estimated is the proportion of the oblast population that are migrating to the larger cities of Osh and Bishkek.

While the evidence for rural depopulation is evident in the empty apartment blocks and schools, migration into the cities is causing changes in the built environment of the regional centers and cities. As Kyrgyz culture is characterized by extended families or clan groups, most urban immigrants move in with relatives as the availability of land, the cost of land acquisition and new construction is prohibitive to the new immigrants. Those residents that are accommodating the migrants are doing so by making one story buildings into two story houses. Even though there is often available land on the large urban plot, its value for cultivation as a garden plot or as a livestock area is too valuable to put another residence on the property. As an outgrowth of urbanization and this rapid urban growth, established families are building houses on the outskirts of Karakol and Balakchy in lieu of, or in some cases in violation of, land ownership laws. At present the legislative means in the form of zoning laws or planning is absent or powerless to stop this new urban sprawl. These observations represent household changes recorded at the rayon and oblast levels. The following chapter provides a description and analysis of land use change at the smallest geographical level-the village. This level provides evidence of the dramatic local impacts and transformation of individual people and their culture in a very short period of time.

ENDNOTES

[1] The *lichnoye podsobnoye khozayaistvo* or personal subsidiary farming called in the west "private plot agriculture" (Pallot 1997, 8:120)

[2] The fact that private farming was considered a minor part of the rural economy and therefore not taxed and neither did the products enter official sales channels means that data given are estimates, derived from unofficial surveys and questionaires.

[3] Internal passports permitting rural workers to migrate from their place of birth/labor were first provided in 1978. Up to that time the denial of such a passport to rural applicants was a public policy measure to ensure sufficient farm labor for agriculture to feed the cities. Ironically this policy had the reverse effect. Young people left the rural areas for the cities prior to their registration at the age of eighteen, thus leaving rural area with an aging population. (One family member, usually the oldest, was required to stay in the village and contribute the household share to the collectives planned output). The reallocation of land since 1991 is influenced heavily by these former "residents" returning to claim "their" (families) land.

[4] In the case of Kyrgyzstan, the fact that it is a male-dominant society would tend to keep females in the rural areas even in the event of large-scale migration. Thus in any analysis of migration in Kyrgyzstan we can be assured that IF it occurs it will be almost exclusively male.

CHAPTER 10: GEOGRAPHICAL CHANGE AT A FORMER KOLKHOZ - A VIEW FROM THE FARM LEVEL

The foregoing three chapters indicated the changes in agricultural productivity that have occurred at the oblast level in the six years since independence. However, these chapters do not discuss the micro-scale agents of change, namely the farmers, nor do they address at the local level the spatial dimensions of change. Thus, this chapter will examine in some detail one former kolkhoz, the Issyk-Kul Kolkhoz, from its creation in the 1930's to the pattern of geographical activity that is present today. An analysis of this nature is difficult. Data for individual villages are rare and when present difficult to obtain owing to excessive secrecy. Moreover, patterns of spatial organization are very much seasonal and without a full year's observation are difficult to trace. Finally, the dramatic changes that have occurred in the five years since independence have created change on a yearly basis making it difficult to ascertain which changes are permanent and which are temporary expedients. Thus, the researcher is forced to rely largely on observations of farmers and their operations, informal interviews and from this draw tentative conclusions.

The former Issyk-Kul Kolkhoz is made up of four villages: Telekmat, Monduz, An Austen and Ak Debe. It is located some fifteen miles west of Karakol and was chosen because, in 1995, it had just disbanded as a state collective, land allocations had been made, and the farmers were beginning to function as private farmers. As such, it was deemed typical of change at the former collective level in the oblast.

Historical evolution up to 1990.

Examination of a map of eastern Ysyk-Kul of 1868 indicates land clearance already taking place in the vicinity of the future Kolkhoz. By 1894, field systems were beginning to emerge and the settlement of Laenka Chonovo, the forerunner to Monduz, was identifiable on the map.

A map of eastern Ysyk-Kul dated 1913 indicates seventeen settlements, of which Telekmat, Monduz, An-Usten are specifically named. Ak-Debe is not named. Notwithstanding the difficulty in translating the number of persons or households, it is clear that Telekmat, on the highway, had become the largest settlement in the local area. If one assumes that for each household there were five residents then the population of the three named settlements was 1,910.

Table 10.1: Population An-Usten, Telekmatovskoe and Monduz 1913.

	Houses	Pieces of Land	Area* of land used for Houses	Norm of Population †	Excess of Population ‡
An-Usten	135	163	90	144	19
Telekmatovskoe	163	174	87	144	30
Munduzovskoe	84	97	48.5	68	31

Source: Kyrgyz State Map Archives 119-2.

* Area is given in Desyatinas. One desyatina is equivalent to 2.7 acres or 6.5 hectares

† Probably resident households, and ‡ Probably absentee population

In the eighteen years between 1894 and 1913, land clearance and intensive agricultural activity had replaced the predominantly rough grazing of 1894. Table 10.2 indicates the advances that had been made in agricultural activity. The most significant development is the amount of land under irrigation and the absence of dryland farming. As the areas around An-Usten and Monduz, the northernmost villages, have little "cattle land" it might be assumed that the large area of cattle land is to the south of the current road and extending into the foothills of the Terskey Alatau. It is also worth noting that the land area is described as "cattle land" rather than "Sheepland".

Table 10.2: Agricultural Use An-Usten, Telekmatovskoe and Monduz 1913.

	Irrigated Land •	Unirrigated	Meadows	Cattleland	Total Usable land	Unusable land	TOTAL
An-Usten	1108	None	126	797	2121	215	2336
Telekmatovskoe	996	190	111	1893	3277	823	4100
Monduzovskoe	542	None	12	522	1124	32	1156

Source: Kyrgyz State Map Archives 119-2.

• Area is given in Desyatinas

The area has no other written record on its characteristics until 1936. Certainly there is reference to the settlements, but it was one of a number of nondescript settlements. It became the Stalin Kolkhoz in 1936 and the largest settlement, Telekmat,[1] was renamed "Chalba" or "Green pastures". In 1956 following the death of Stalin in 1953, the collectives were amalgamated making it the largest collective in the rayon.

At present, the communities of Monduz and Ak-Debe are ethnically mostly Kyrgyz, while Telekmat and An Usten have more ethnic diversity. In the early sixties, the collective was even more highly ethnically diverse with significant numbers of Russians, Ukrainians and Dungans, but the closing of the central machinery plant, MTS or Machine Tractor Station, and the resultant out-migration of the Russian and Ukrainian technicians made the communities more homogeneous. Of the Kyrgyz, there are seventeen different Bugu sub-tribes in the villages, and they are dispersed throughout all the communities. The community of Telekmat has a Muslim cemetery located on a hill above the spring pastures about one mile west of Telekmat, and Monduz a cemetery to the north-east of the village. There is no Russian Orthodox Church or cemetery.

The internal organization of the villages is dedicated to agriculture. There is a communal milk shed, silage pit and fodder storage area. Individual communities have their own machinery storage area. There is a store on the main street but it has few consumer goods. Residents prefer to shop in

Karakol, some twelve miles to the east. All residents were proud of their kolkhoz's accomplishments under Soviet rule, but 1990 brought dramatic changes to their once isolated and insular existence.

Issykul Kolkhoz/Telekmat, Monduz and Ak-Debe. 1992-1996

Current Community demographic profiles

In contrast to those communities close to the larger cities of Karakul and Balakchy, the villages of the former Issyk-Kul Kolkhoz have not only retained their population, but also increased population significantly. The largest community of the four, Telekmat, has increased population by almost 25 percent between 1992 and 1996. There is also little evidence that young males are leaving the communities and migrating to the cities. The proportion of males to females is almost unchanged over the four years of the data. It is also evident that the rate of household formation in the villages increased significantly between 1994 and 1996. This is almost certainly the result of young married couples returning to the village to claim land in the process of privatization.

Table 10.3: Farm Population and Households. Former Issyk-Kul Kolkhoz 1992-96

Village	1992				1994			1996		
	House holds	Persons	M	F	House holds	Persons	Households	Persons	M	F
Ak-Dube	286	1142	582	560	290	1178	388	1213	601	612
Monduz	129	525	276	249	152	560	162	585	288	297
Telekmat	445	1918	937	981	479	1995	555	2066	1065	1001
An- Osten	286	1168	587	581	294	1203	365	1225	619	606

Source: Central Statistical Office, Ysyk-Kul Oblast and compiled by author

Ownership, Employees and Farm Reorganization

Issyk-Kul Kolkhoz was dissolved in 1995. The village lands around Telekmat were broken up and assigned to 49 separate categories, of which thirty-two categories were allocated to family farms; the remainder was assigned as land banks, communal areas and special categories. The thirty-one farm families were apportioned lands as shown in table 10.4.

Table 10.4: Village of Telekmat, Djeti-Oguz Rayon, Ysyk-Kul Oblast, Individual Farm plots 1996

Farm	Age of Leader	Households in cooperative	People	Total Acreage in hectares	Irrigated Acreage in hectares	Non-Irrigated in hectares
1	48	21	87	40.08	36.46	3.72
2	46	43	191	89.16	80.95	8.21
3	62	6	32	14.93	13.60	1.38
4	28	9	49	22.93	20.81	2.12
5	53	8	51	23.87	21.28	2.19
6	30	9	45	21.06	19.13	1.93
7	35	11	45	21.06	19.13	1.93
8	73	2	10	4.68	4.26	0.42
9	55	10	52	23.87	21.69	2.23
10	49	14	64	29.48	26.79	2.75
11	49	10	56	26.21	23.81	2.40
12	47	33	62	70.20	67.54	2.66
13	60	27	141	63.64	57.58	6.06
14	30	17	68	31.82	28.09	2.92
15	40	14	84	29.95	27.02	2.75
16	50	15	70	32.76	29.71	3.01
17	47	16	64	29.95	24.11	2.75
18	54	30	138	64.58	63.71	5.93
19	46	10	60	28.08	25.05	2.58
20	47	15	88	41.08	27.04	3.73
21	37	13	59	27.61	25.08	2.52
22	64	1	9	2.34	2.13	0.21
23	59	30	147	66.24	31.24	6.32
24	34	36	169	79.09	71.83	7.26
25	49	41	200	93.59	72.36	8.10
26	80	3	14	6.56	5.94	0.06
27	63	3	15	7.03	6.37	0.65
28	37	6	30	14.04	12.73	1.28
29	47	4	25	11.69	10.63	1.08
30	40	5	23	10.76	9.77	0.98
31	46	1	9	4.21	3.28	0.39
TOTAL or Average	49 yr.	493 households	2295	1095.34 0.44 per person		
Other land allocations				281.54 ha. or 20.4 % of total		

Source: Unpublished data, Land Management Center Karakol Branch office 1996.

Family income

Data on farm incomes are difficult to obtain. Official government statistics (Goscominvest 1995) indicate a national average of 1200 som, about $70.00 per month, though it is believed incomes are considerably under reported. This is particularly true in the farm sector, where cash sales in the local markets go unreported. Figures on one farmer, presented in chapter one, while taken from a successful farmer, are indicative of the incomes that can be obtained with some efficiency of production and market intelligence.

Table 10.5: Village of Monduz, Djeti-Oguz Rayon, Ysyk-Kul Oblast, Individual Farm plots 1996

Farm	Age of Leader	Households	People	Total Acreage	Irrigated Acreage	Non-Irrigated And dryland farming
1	55	17	57	36.48	25.71	10.77
2	72	12	50	32	22.56	9.14
3	35	13	59	37.76	26.61	11.15
4	42	5	25	16	16	4.73
5	48	12	45	27.52	19.39	8.13
6	58	10	48	30.72	21.64	9.08
7	50	13	55	35.2	24.80	10.4
8	34	7	29	18.56	13.08	5.48
9	40	10	40	25.6	18.04	7.5
10	34	6	19	12.16	8.56	3.6
11	34	7	27	17.28	12.17	5.11
12	32	3	18	11.52	8.12	2.4
13	24	8	24	15.36	10.82	4.54
14	59	9	37	23.68	16.68	7
15	46	10	45	28.8	20.29	7.51
TOTAL		142	576	368.64	264.47	106.54
Average	45			2.59 per family	1.8 per family	0.76 per family

Source: Unpublished data, Land Management Center Karakol Branch office 1996.

Field Systems Pre 1995

In the following aerial photograph, taken in 1992, the spatial pattern of the field systems at the time of decollectivization is shown. The photograph shows the main Pokrovka-Karakol road running from the west (bottom right-hand corner) to the east (top-left corner). The settlement of Telekmat is the darker grid area to the left (north) of the road. The field systems to the right (south) of the road are characterized by large cultivated fields, between twenty hectares and 100 hectares in size and defined as Vogeler's landscape fields by dark linear edges. In some cases dark sinuous lines show irrigation ditches within the landscape fields, and these are the cultivated fields of Vogeler. At the bottom center of the photograph the common pasture is shown as a large, undivided area and to the south of the road the large dark rectangular block is an apple orchard.

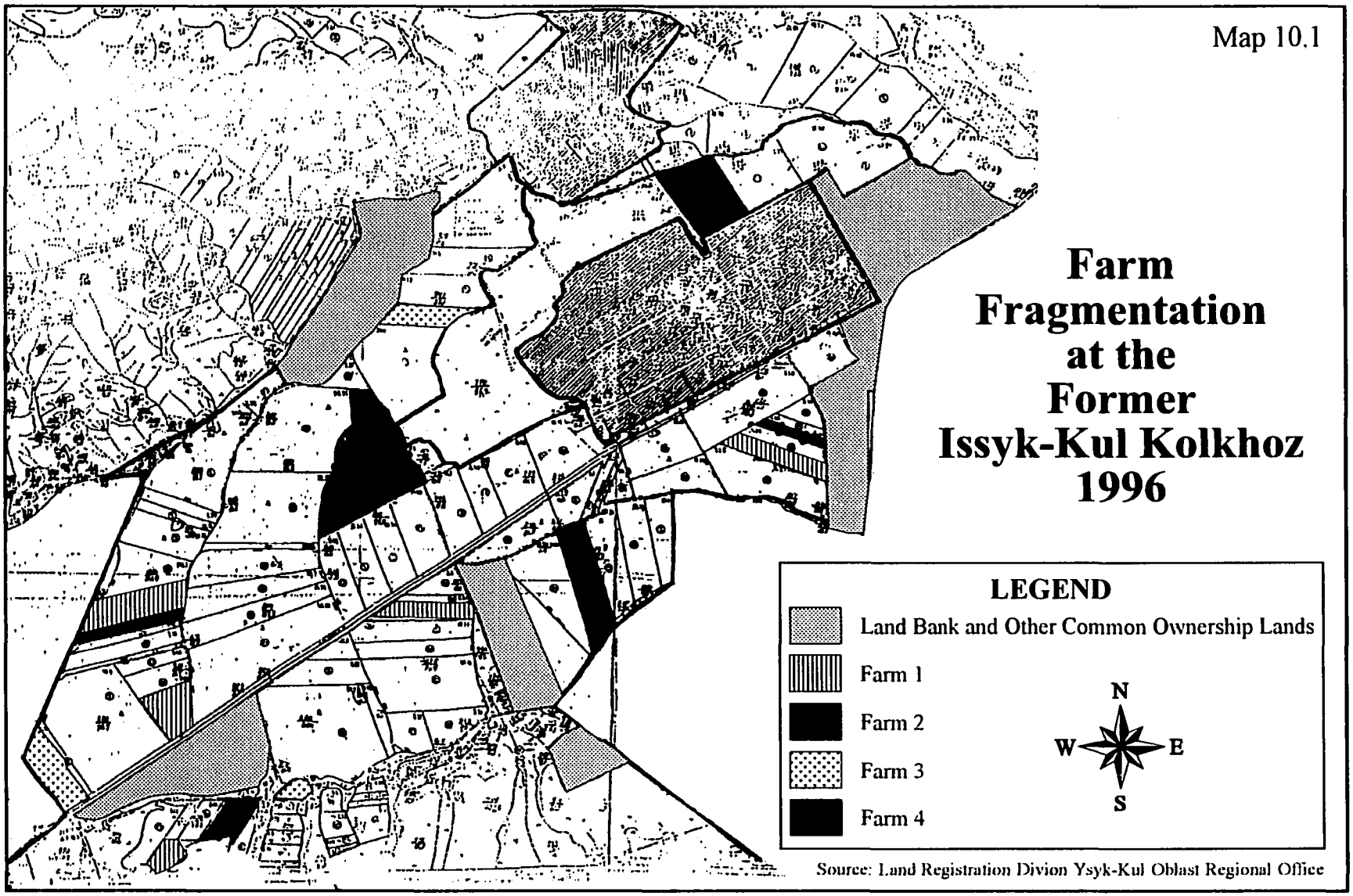
Scale: 1:10,000 approx. Source: State of Kyrgyzstan, Institute of Cartography and Geodesy

Plate 10.1 Aerial Photograph. Village of Telekmat 1992.

Plot Structure and Tenure Post 1995.

It was upon this system of large landscape fields that the de-collectivization and privatization was enacted. Map 10.1 indicates the irrigated and non-irrigated fields of three farm families in the village of Telekmat and Map 10.2 indicates the total division of the land base made in 1994. As was noted above, the village lands were apportioned between 32 families representing 493 families and almost 3,000 persons. The area of land owned by the villages was 1,019 hectares for Telekmat, 503 hectares for An Osten, 831 hectares for Ak Debe and 368.64hectares for the village of Monduz. As a result of the division of land, the average land holding was 0.44 hectares per person or 2.09 hectares per household for Telekmat, 2.6 hectares per family in An Osten, 3.68 hectares per household for Ak Debe and 2.4 hectares per family for Monduz. It is clear from table 10.4 that there was a conscious

Map 10.1


Farm
Fragmentation
at the
Former
Issyk-Kul Kolkhoz
1996
LEGEND
Land Bank and Other Common Ownership Lands
Farm 1
Farm 2
Farm 3
Farm 4
N
W
E
S
Source: Land Registration Divion Ysyk-Kul Oblast Regional Office

attempt by the village committee that allocated the land, to provide each landholder with some considerable portion of valuable irrigated land as well as some unirrigated fields.

As a result, the field ownership system consists of a series of fragmented field systems whereby a farmer will have fields geographically distant from his or her other fields

Owing to the location of Telekmat, on the broad, gently sloping piedmont slopes off the Terskei Ala Tau, the area is well suited to irrigation and was irrigated early in the settlement phase. Upon privatization, most of the land was irrigable, but the large number of rural residents created very small plot sizes. Thus, the average allotment was only 0.44 hectares per person or 2.2 hectares per household. Furthermore, the elongated shape of the former Kolkhoz dictated that the families would receive land in a number of locations.

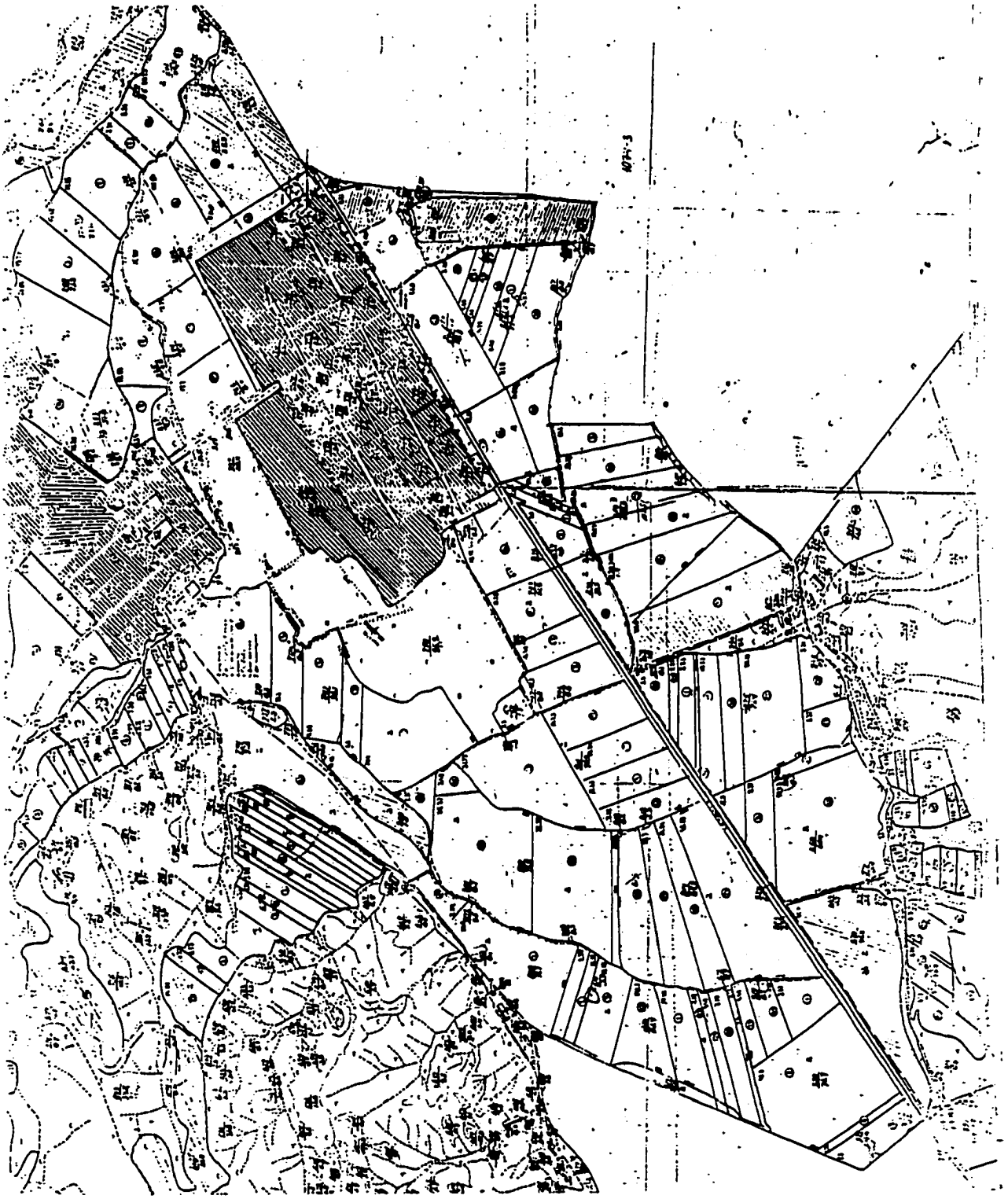
The non-irrigated land received by the villagers is located on the ecume, or limit of the cultivable land on the slopes of the Keskey Ala Tau. Plot size is small, averaging less than one hectare.

The unallocated land consists of seventeen parcels totaling 280 hectares. It represents the 25 percent land fund required by the government in the 1994 decree, the formerly communal orchard, and lands immediately adjacent to the village and now used for additional small plots. The village government is actively looking to allocate the land fund land, thus completely privatizing the land.

Household Production: Livestock and Crops

There are no detailed data available on the production of livestock and crops at the farm level. However, in a survey of the village of Telekmat, it is estimated that over 80 percent of the houses have facilities for livestock to be held in enclosures adjoining the house. Thus, a family grouping individual householder will buy fodder or he might graze his sheep or cow at the roadside. In the spring, he most likely will pay a freelance shepherd to include his livestock in a cooperative

Map 10.2 Land Allocation and Tenure Issyk-Kul Kolkhoz 1996



movement of the village livestock to summer pastures in May where they will remain for the subsequent four months. This reflects the large reduction in the herds in the last six years, and the impracticality of the individual farmers each taking their stock to summer pasture.

Crops are grown in the garden or in the "common" area for plots adjoining the settlement. The intensity and productivity of these plots is such that surpluses are generally possible and available for sale in Karakol markets.

Pasture land and Issykul Kolkhoz.

Like all collective farms, the raising of livestock was a major component in the farm economy of Issyk-Kul Kolkhoz. The collective was fortunate to be located close to an area of marginal arable production. This land, to the west of the collective, served as winter pasture for the herds. In addition, *Kashar* or sheep pens were built on the piedmont fringes to over winter the livestock. The *Kashar*, as in most parts of Kyrgyzstan, were built close to the spring pastures (Map 10.3) such that, with the disappearance of the snows in the spring, the animals could be grazed on areas proximous to the Kashar and also close to the farms for spring lambing (Map 10.4). In late May or early June the Issyk-Kul collective moved the herds some fifty miles to the summer pastures, or *Jailoo*, located along the Ak Shirak River (Map 10.5). Here the herds remained until September. Village elders indicate the summer pastures have been on the Ak Shirak River since anyone can remember. Map 10.3, indicates the location of the summer pastures of the former Issyk-Kul Kolkhoz.

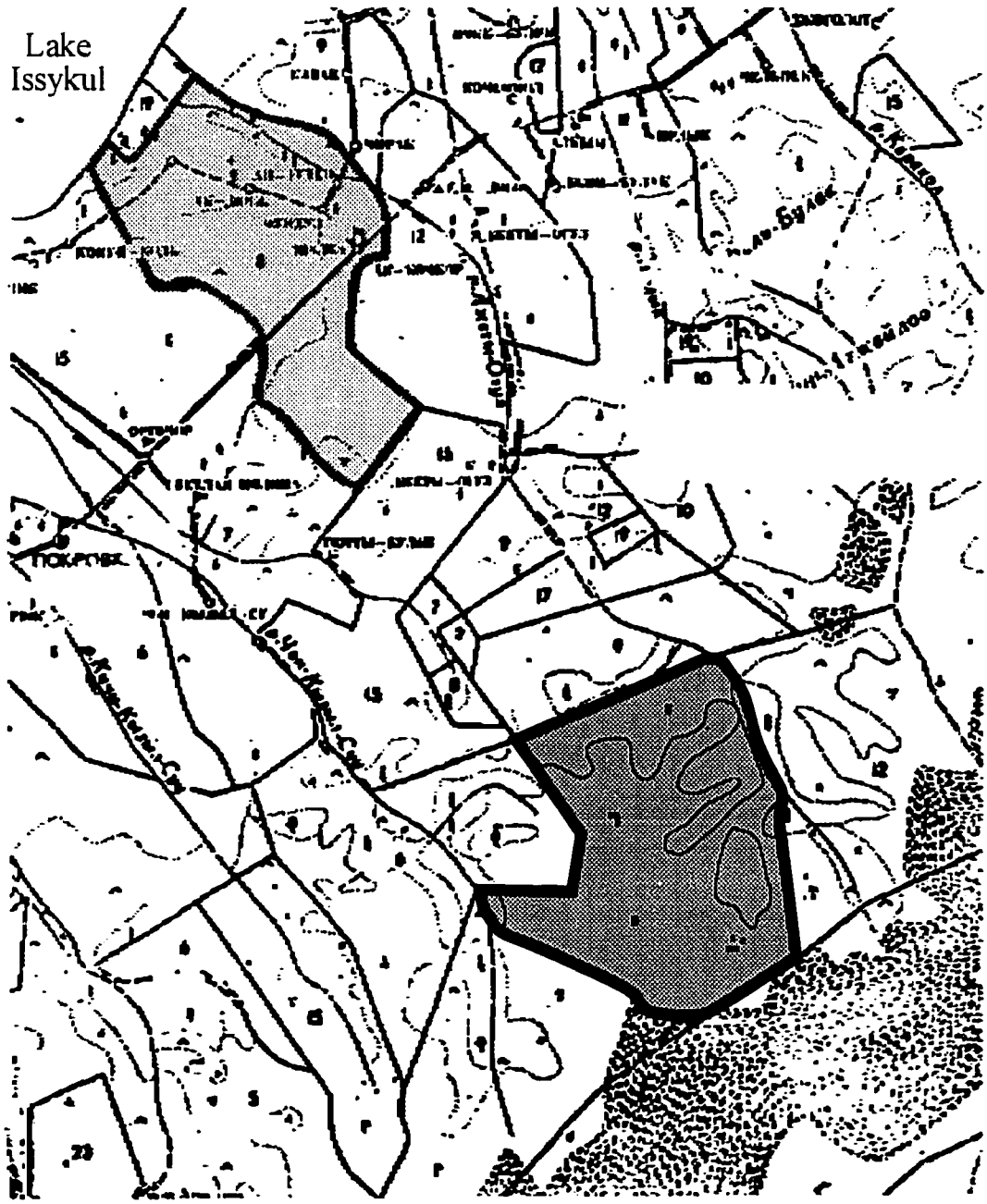
Social and Cultural Change 1991-1997

Education

In Ysyk-Kul Oblast the number of educational facilities are impressive. In Karakol, there is a branch of the Kyrgyz State University including teacher-training facilities with 520 students, a vocational-

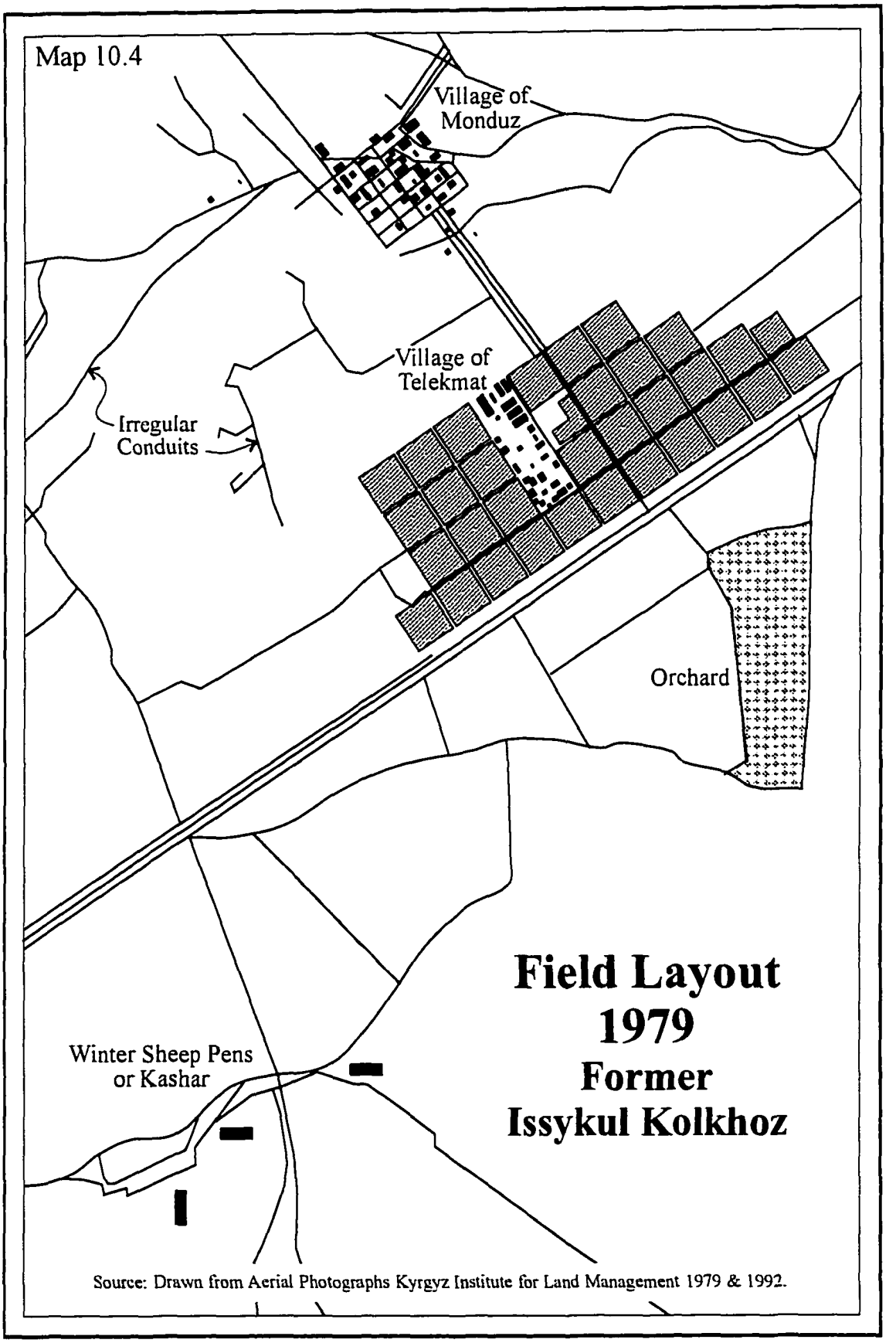
Map 10.3

Issykul Kolkhoz
Spring - Fall Pastures 1979



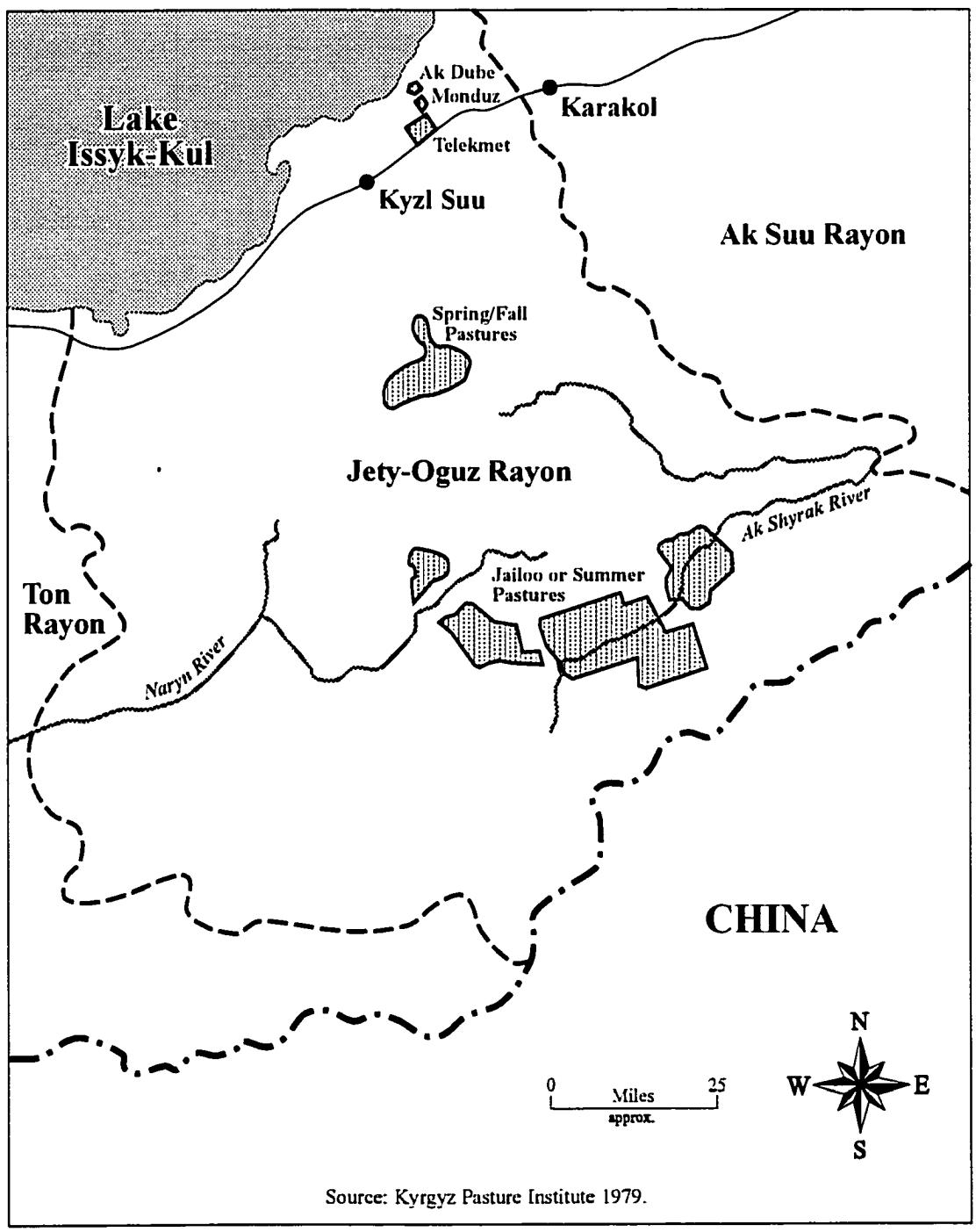
LEGEND Farm Land Pasture Land

Source: Kyrgyz Pasture Institute 1979.


Map 10.4
Village of Monduz
Village of Telekmat
Irregular Conduits
Orchard
Winter Sheep Pens or Kashar
Field Layout
1979
Former
Issykul Kolkhoz
Source: Drawn from Aerial Photographs Kyrgyz Institute for Land Management 1979 & 1992.

Map 10.5

SUMMER GRAZING AREAS
Issykul Kolkhoz
1979



Source: Kyrgyz Pasture Institute 1979.

technical training institute with thirty subject areas including medical technicians. There are three schools for the handicapped, a music school, and twenty libraries throughout the oblast. In Balakchy, there are nine secondary schools serving 8,600 pupils, a vocational-technical training institute with 300 students, a music school, nineteen pre-school institutions (kindergartens) and thirteen libraries. In total, in Ysyk-Kul Oblast in 1993/94, there were 188 schools teaching 9903 students with 7641 teachers. There is one central school for the four villages located in Telekmat. It offers schooling for ages five to seventeen after which time students must go to Karakol for higher education. In 1997 there were 491 pupils in the school.

Health and Nutrition.

Health care was always touted by the Soviets as a major triumph of the socialist system. Indeed, as has been seen in chapter five, the gains in health care in the twentieth century have been impressive. In Kyrgyzstan there is one doctor per 280 persons, but the essentially rural nature of Ysyk-Kul has reduced that number to 1 doctor per 380 persons in the oblast (World Health Organization 1995).[2] However, the limited facilities and lack of medical supplies available to the physician explains an infant mortality of over 40 per thousand and a life expectancy of 66 years, considerably lower rates than those in the Western world [3]

As part of the Soviet Union, healthcare was formerly an integral part of the communal organization of the Issyk-Kul Kolkhoz. As a result, not only was there a resident doctor with a nursing staff, but there was a dedicated post-natal clinic with the capacity for overnight stays for the mothers and infants. There was formerly a kindergarten in Telekmat adjoining the clinic and adjacent to the school. In 1993, the clinic closed as the doctor moved to Karakol and the kindergarten closed. Thus, all the central medical and social facilities are now unused and empty. The residents are required to travel to Karakol for health care. Telekmat has piped water from underground aquifers but many houses still get their water from village standpipes. There is no central sewage system.

Residents have outdoor privies with no lime treatment; thus the possibilities of water-borne disease such as hepatitis and cholera are significant.

The World Health Organization has oblast data that show a high incidence of diseases in the population.[4] This is almost entirely due to the poor sanitation that exists in the oblast and in the country in general. In table 10.6 the rudimentary conditions that exist for water supply and sewage disposal that exist in Kyrgyzstan, and that have been blamed by the World Health Organization for the poor health of the rural population, are identified. The table also indicates the extent of remedial action that would be required to address this situation.

Table 10.6: Rural Health and Sanitation facilities-Kyrgyzstan 1989

	Kyrgyzstan	USSR
Water Source-Streams, rivers, wells	33%	
Piped cold water-Kolkhoz	20 %	39 %
Piped Hot water-Kolkhoz [5]	4 %	10 %
Sewer Systems-Kolkhoz		27 %

Source: Goscomstat SSR, Press Release 436, 29 November 1989, p.2 and quoted in Feshbach and Friendly (1992)

Housing

Housing shortages were a perennial problem for the Soviet Planning authorities, and conditions in Ysyk-Kul were no different. By the Kruschev era, communal housing was averaging less than 4 square meters per capita, essentially one room for all family members. Kruschev embarked upon a massive housing program and average dwelling sizes in Kyrgyzstan in 1985 was reported (National Statistical Committee 1995) as 60 sq. meters of useful floor space. By 1995 this had risen to 101.4 square meters. By 1985 apartment construction was averaging 16,600 dwelling units per year for a population that was growing at 2 percent per annum, clearly inadequate for regional needs. By 1995

with the serious decline in revenues into the national budget after 1990, construction of dwelling units had fallen to 3,600 for the republic. Of these 3600 units, 2,400 were in rural areas. Overall, by 1995, there were only 800 dwellings constructed per 1000 population, down from 4,200 in 1985. Moreover, the quality of construction and service provision was deficient. Table 10.7 indicates the lack of emphasis placed on comprehensive service provision.

Table 10.7: Facility provision, new houses, Kyrgyzstan 1986

	% of New Rural Houses with:		
Services	Sewage system, running water and Central Heating	Partial Services	No services
Kyrgyzstan	24 %	30 %	46 %

Source: Vestnik statisticki (1987) 5, p.68. Quoted in Bradshaw 1991

It is generally agreed that while social conditions in the countryside are significantly inferior to those of the cities, the quality of rural housing in locations like Telekmat is superior to that in the urban settlements. Most residents of Telekmat still live in the old traditional walled compounds that provide for extended family living with their adjoining outdoor clay ovens. Such ovens are a basic part of Kyrgyz infrastructure. To have such an oven indoors in summer would be too hot and the need for bread is a major consideration in the Kyrgyz diet.

Conclusion

The former Issyk-Kul Kolkhoz, centered on the Village of Telekmat, is a typical Kyrgyz village and its future is little different from other villages in Ysyk-Kul. Simply stated the future is of some concern. Much like the threats to rural living that are so characteristic of western nations, the threats in Kyrgyzstan are similar yet more intense. In particular, the lack of social, health and economic amenities is of concern to the government and the residents. However, to provide utility

infrastructure, schools and hospitals, paved roads and consumer goods, seems more than the country can possibly afford at this time. Unfortunately the natural result is the movement of disaffected youth out of the communities into the cities and a source of urban discontent. Future options of this nature will be examined in the next and final chapter.

ENDNOTES

[1] Telekmat was a famous pre-Revolutionary Kyrgyz diplomat. Soviet ideologists were not comfortable with pre-Revolutionary heroes and hence changed the name to Chalba ("beautiful green pastures") in the early 1920s. The settlement was re-named Telekmat in 1992.

[2] This ranks favorably with the U.S. average of one per 420 persons

[3] In the U.S infant mortality is nine per thousand and life expectancy seventy-six years. In Kyrgyzstan the official life expectancy is sixty-six but both this figure and infant mortality should be treated with caution. Feshbach and Friendly (1992) have shown that infant mortality in the former Soviet Union is considerably understated and life expectancy overstated. In the case of the latter, life expectancy in the fifties may be nearer the truth and in the former a doubling of the mortality may be justified.

[4] Feshbach and Friendly (1992) quote a medical writer who claims "Over 1500 people die from digestive illnesses and of these over fifty percent are children less than one year of age. In the preceding three years water pollution was the main cause of the Republic's 320,000 recorded cases of typhoid, viral hepatitis and other intestinal infections, an average of one bout of disease for every fourth inhabitant every year."

[5] Piped hot water means "available for part of the year." Hot water in Karakol and Bishkek is turned off around April 15 every year and may not return until as late as November 15 in some years. Authorities turn the centralized system off for "maintenance." In Karakol the local thermal electricity plant from which much of the hot water is generated is experiencing increasing difficulties getting coal to fuel the generators.

CHAPTER 11: CONCLUSIONS AND A FUTURE FOR YSYK-KUL

Any visitor to the rural areas of Ysyk-Kul Oblast is immediately struck by the timelessness and seeming permanence of the landscape. Sheep still graze the hillsides around the villages, horse drawn wagons move farmers to their fields and their product to market, and the fields are tidy and tilled. However, closer examination reveals disturbing incongruities in this seemingly stable, pastoral, rural community. In some fields horses may be plowing or the farmer may be hoeing or tilling the soil by hand. In others, whole families are clearing stones from the fields by hand; potatoes are being planted by hand with fertilizer in the form of manure placed in the holes. Close inspection of buildings used for wintering animals' reveal that they are empty and dilapidated and many irrigation channels are overgrown by vegetation and in a state of decay. In the center of the village where all the farm buildings are located, tractors lie rusting in the old MTS stations, and silage pits have no maize or grass fermenting for later use. Cows are still milked twice a day, but there are far too many stalls for the number of cows. In the streets the children still play in the watercourses and schoolyard but many school classrooms are empty. In the residential areas large numbers of apartment blocks lie empty and the central store has even less merchandise than during the Soviet period.

Talking to the villagers reveals a similar dichotomy. Most speak fondly of the past when they had money for some luxury items and most basic consumer goods that they are now unable to afford, even though these commodities are more readily available than in the past. They are confused by the change yet they claim to support and understand the workings of the new market economy. They see the advantages of being a private landowner and confess it is personally more satisfying than the previous collective ownership system and welcome the opportunity to own land, grow their own produce and support the extended families to which they are so attached. However

they still defer to the family or village patriarch or the former collective manager for decision making and look with derision and resentment on the few truly private farmers who they call "uncooperative". The one common concern to all is what the future will bring. They are particularly concerned over the erosion of healthcare availability; employment opportunities for their sons and daughters, the uncertainty of which paths to take to higher standards of living and the sacrifices that might have to be made to obtain a better life. In sum their future is fraught with fear and uncertainty.

This dissertation has charted land use changes that have brought Ysyk-Kul Oblast to this state of affairs. Its major conclusion is that while state hegemony has been the principal cause for the changes in land use and the resultant landscape, the effects or ramifications have been a governed by the cultural attributes and characteristics of the people. Culture is a dynamic phenomenon that modifies and adapts to changing external events and actions, thus leaving relic cultural traits following the imposition of new, external economic systems. It seems axiomatic that in times of cultural stress individuals and groups revert to their cultural heritage. Furthermore it is the manifestations of culture that will be the most apparent and supportive elements in the near future. Thus the challenge was to look for and confirm the evidence for this cultural retrenchment in the changing geographical landscapes of Ysyk-Kul Oblast. One can then speculate how this will evolve in the context of the country and its people. More directly, in an attempt to address the concerns and fears of the people, the concluding chapter will suggest, on the basis of cultural precepts, the major areas in which this cultural control is and will be manifested and the changes that might be expected in the near future. This will show how a study of this nature can be helpful in a land that is undergoing such a radical transformation as Kyrgyzstan.

Conclusions

The primary finding of this dissertation is that dramatic changes in land use can be identified and mapped for four periods in rural Kyrgyzstan. These are:

Traditional Kyrgyz

Russian Settlement

Soviet hegemony and

An independent Kyrgyzstan.

The major changes that can be mapped for each period are:

Period one: Vast open piedmonts used for extensive sheep grazing, separating densely forested uplands and marshy bottomlands. The only buildings are in semi-permanent winter settlements made of clay or are yurts. These settlements are joined by dirt tracks.

Period two: An influx of permanent, sedentary Russian settlers bringing the cultural features of their Russian homelands i.e. churches, parks and fields systems. The Kyrgyz still live in semi-permanent winter settlements, adjacent to the Russian settlements, which are located on military or communication routes.

Period three: Completion of the field system and the permanent settlement of the Kyrgyz in their former winter settlement locations. Trees line irrigation ditches and over time both Russian and Kyrgyz ethnically distinct nucleated settlements expand. The only dispersed buildings are winter livestock sheds. Roads are paved and tree clearance for building begins to exhaust the supply of local timber. Canalization of major watercourses also occurs.

Period four: Existing field systems are divided amongst the inhabitants creating a multi-parcel long lot system. Horses become the only livestock that exhibit any stability in numbers.

These four periods represent four significant paradigm shifts that translate into cultural shifts. Thus the central theme is land use change with the final shift a reversion to older cultural

patterns or a process in which inertia opposed by culture. Figure 11.1 depicts this spatially change visually and conceptually.

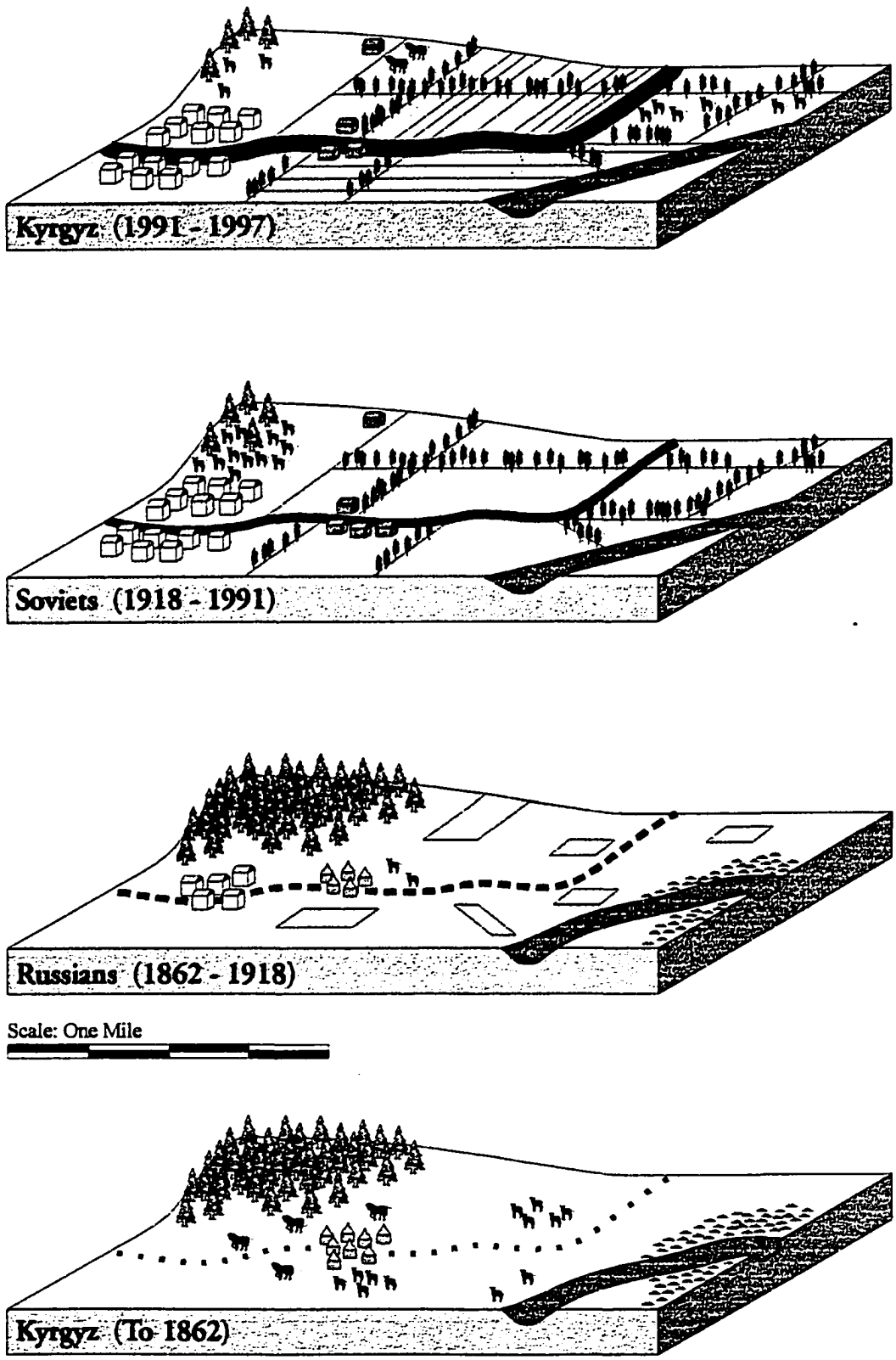
What these patterns do not show are the non-visible elements of cultural reversion. These include the changing demographic nature of the region, the formation of new institutions including religious institutions, new power relationships with the withdrawal of soviet institutions whereby the nomenclatura assumes an estate role, the effect of capital and finally the effect and influence of consumerism and popular culture. Following is an analysis and prognosis for these non-visible elements.

The Land.

The most obvious change in the rural makeup of Ysyk-Kul Oblast is the provision of land as an asset for use as the farmer or farm household decides. Interviews with farmers reveal nearly unanimous positive reaction to this change in land tenure. Notwithstanding the reservations of the officials in the administration and the desire of the overseas aid experts to see a more economic and rational approach to land allocation, the major recipients, the farmers, are in favor of the new system. However, this enthusiasm for individual ownership has to be seen in the context of the lingering mentality and trappings of a collective system. Furthermore, while it is apparent that they are prepared to risk the vagaries of the market economy in the type and amount of crop they grow, their priority is to provide a secure food supply for themselves and their families. Pallot (1997 in Bradshaw 8:121) has called this phenomenon: "peasantization"[1] .To that end they are growing basic staple produce in the form of wheat, vegetables and fruits. Any surplus produce is put up for sale and the proceeds used for reinvestment or savings.

It appears that in the near future the most significant liabilities will be the lack of farm inputs. The curtailment of inter-republic trade has curbed the supply of fertilizer and the lack of export markets has curtailed the ability to buy equipment and seeds. The result has been a reversion to historic cultural agricultural artifacts and methods. Thus, farming is being conducted

Figure 11.1 Model of Ysyk-Kul Oblast Landscape Evolution



with increasingly antiquated equipment and when this equipment needs replacing, it is replaced by horse or in some cases human traction. (See image 5). During planting the farmer will use homegrown seeds, which are a lower grade than commercial seed, and fertilize the land with animal waste. Finally, the lack of farm credits with which to purchase the needed inputs are a major drag on the oblasts ability to increase productivity and yields. Should this deficiency be solved in the short term there will be an immediate need for markets. Similar to the system of inputs, up to 1991 markets in most commodities were designated as a part of intra and inter republic trade. The implementation of a market mechanism significantly changed the network disrupting or altering agricultural supply networks, markets and processing facilities. The response was a reversion to barter as the means for conducting transactions. This reversion has to be seen in the context of an emerging economy in which the principle of comparative advantage within a market economy is beginning to assert itself prior to the introduction or reintroduction of monetization of the economy. However, it is difficult to avoid the conclusion that even if the farm supply and market system becomes sufficiently advanced to provide surplus and trade items, the remoteness of the region from major markets would never give it a comparative advantage in any agricultural commodity.

Livestock

The most visible reminder of the cultural heritage of the Kyrgyz people is the reversion to the horse as a means of traction, transportation and inflation hedging. This reversion is borne out by the stability in horse numbers, the rise in industries catering to the horse such as leather workers, horse-drawn plough makers, and farriers.

The study also attempted to ascertain the degree of reversion to the use of the camel as a means of transportation and the yak as a means of transportation and as a source of meat. There is little evidence from Ysyk-Kul oblast that this is occurring and indeed the camel may have disappeared from the livestock mix in Ysyk-Kul.

With regard to sheep, numbers plummeted in the years immediately following independence as Kyrgyz herdsmen optimized the number of sheep for which they could care and meat producers replaced wool breeds. Native black-tailed sheep now characterize the Kyrgyz sheep herds and sheep numbers seem to have stabilized as prices in the local market rise in response to an excess of demand over supply. Overall, the prognosis for livestock as a basic element in the rural economy seems good. However, the competition worldwide in sheep products, particularly from Australia and New Zealand would suggest a purely local market for this commodity in the future.

Crops

While cropping in Kyrgyzstan was by no means a monoculture, variety was not a feature of food selection. The large landscape fields grew grain and fodder crops and fruit and vegetables were primarily grown on smaller private plots. By 1996 there was a greater variety of crops grown in response to the demands of the local markets and increasingly specialized crops were now grown specifically for local sale or medicinal purposes. The concern for the future has always been expressed in terms of the viability of the small plots now being cultivated. Discussion with the farmers indicates a complete lack of desire to expand to commercial production as the current system provides for subsistence and a small local surplus. Of interest is a recent publication by the Rural Development Institute suggesting that smaller farms may be appropriate for Former Soviet Republics (Hansted 1998). In the absence of monetization and markets this theory may indeed prove to be correct.

Pastures

Under communism the vast sheep herds that formerly signified a tribe's wealth were replaced with a collective wealth in sheep and the adoption of ancient pasturelands by the Soviet authorities. With the coming of decollectivization and privatization the Kyrgyz again pooled their individual sheep herds and, under the direction of the patriarchal system, continued to use the areas of historic grazing. The most significant difference was that in the post-Soviet era the movement of livestock

to summer pastures was made by driving the herds on the hoof. This is in contrast to the Soviet system where motorized transportation was provided to move the animals and their products (meat and milk) to and from the ancestral grazing areas. The only exception to this system was that grazing lands were not available to the truly private farmer and who was now required to negotiate with the former collective for grazing land. At present, there appears to be a satisfactory resolution to this potential conflict, as herd sizes are not large enough to cause a scarcity of grazing land, but in future conflict may arise. In this regard the system of power and governance relationships established long ago and now coming to bear on the new political order will be instructive (See Huskey 1997, Collins 1998 and below). Specifically, such a historic system of tribal governance may be in conflict with a society now oriented to the individual.

Land tenure and farming systems

The most striking change in Kyrgyzstan is a classical change from open fields to enclosed arable fields and, most recently, to a system of long lots. Geographers have shown (Jordan (1973), Carlson (1974), and Ironside (1976)) that where long lots exist, they are relic features in the landscape. In the western world, the system of long lots ultimately disappeared, as such lots were not economic, and were replaced by field systems that reflected a change to industrialized farming. The question then becomes whether the field systems in Ysyk-Kul will also change in response to a need for industrialized farming to feed a growing population and an export market. If such a change is to occur, there is a need for land to be treated as a tradable commodity. At present there is no land market as the state still owns all of the land, but the granting of ninety-nine year leases on the land and the opportunity to trade land on a lease basis may be the forerunner to a market in land.

Physical processes

Physical processes such as drought or environmental degradation have an immediately visible effect on the landscape. In the past two years Ysyk-Kul oblast has seen the serious effects of

adverse physical processes. In the spring of 1996 planting and sowing was undertaken without any adverse climatic effects. The subsequent summer had the promise of a good crop yield until on August 23 and August 26 two large snowfalls devastated the ripening crops with a consequent dramatic loss of crops. Naturally, the farmers were without insurance and many experienced severe financial and food setbacks. Worse, in the eight months that followed, there was severe drought and spring planting in 1997 was undertaken without any soil moisture storage to provide for seed germination.

Environmental degradation presents another pressing problem. The massive culling of the herds and the lack of means and incentive to move to the summer pastures has meant that the lush montane summer pastures have recovered to a pristine condition. In contrast the lower spring and fall pastures are now often used year round with the resultant severe degradation of the grasses in these areas.

Demographic change.

In any developing economy, rural-urban migration is a very significant feature as labor mobility is a major determinant in economic change. Indeed, in Kyrgyzstan it may be seen as the major barometer for change. Specifically, a reduction in the available agricultural labor force, most commonly as youth migrate to the cities, causes a concomitant rise in farm efficiency and productivity. Industrial growth usually accommodates this urban surplus. At present this does not seem to be a major phenomenon in Ysyk-Kul Oblast, possibly as a result of the widespread distribution of land to all the former workers and the strong ethno-cultural ties of the Kyrgyz to their families and their ancestral lands. This is unlike historic agricultural enclosure movements, in which forcible ejection from the land was a major push factor causing rural-urban migration. This situation may not continue. In the short term, the sale or allocation of the land banks should keep farm populations high as the existing village residents absorb this land, and as urban dwellers return or apply for farmland.[2] In the longer term, if the Kyrgyz rate of natural increase is sustained,

increasing pressure on the land base to support more people may make the already small land plots uneconomic while rising incomes in the urban areas may also draw significant numbers off the farms. It is a real possibility that in the future, Kyrgyzstan may be marked by a movement of unemployed, disillusioned youth left to wander the streets of the major urban centers.

Religion

The role of religion in the Kyrgyzstan of the future remains the great unknown. The rise of Islamic fundamentalist movements in Afghanistan and Tadjikistan is a cause for much concern in political and social circles of Kyrgyzstan. Closer to home, the financing and construction of mosques by the fundamentalist forces present in Turkey has been a condition for much-needed development aid. However, it is apparent that the seventy years of communist control has led to a secularization of much of the Kyrgyz population to the extent that while some seventy percent of the population are nominally Muslim, attendance at the mosques is sparse and strict adherence to Islamic tenets is rarely observed. The political course over the short term has been for the Kyrgyz government to tie themselves closely to such governments as other Turkic nations and Iran in the areas of trade and commerce. At the same time, Kyrgyzstan remains a vociferous and unflinching member of the Commonwealth of Independent States. In a wider context the rise of Shiite fundamentalism in Afghanistan and the fact that the Sunni Kyrgyz do not consider themselves immune to this movement may have great implications should fundamentalism spill over into Central Asia. Indeed both sects are active proselytes in Kyrgyzstan. Finally, complicating the drive for religious supremacy, Western missionaries are very active in Central Asia to the resentment of the existing and revitalized Islamic leaders. Political pressure to curb their activities may both stimulate and confirm Islamic hegemony in the next few years. On the other hand, it has been suggested (Huskey 1997) that any rise of Islamic fundamentalism in Kyrgyzstan may be difficult without a charismatic national leader and a strong religious heritage at the local level.

Governance and power structures

Brooks (1994) has shown that elsewhere in the former Soviet Union the nomenclatura assumed the estate or power broker role after the change to a market economy. Essentially, as the ruling power broker upon independence, they assumed the role of *de facto* government at the local level and from this power base dispensed farm inputs (i.e. machinery, fertilizers, seeds, and farm credit). As a result, the power structure was essentially unchanged, which in turn has been a major contributor to inertia to change. Collins (1998) has indicated that upon independence, the national government of Kyrgyzstan essentially changed from governance characterized by a purely political (socialist) party structure to governance by a tribal power elite. In Ysyk-Kul at the local level the allocation of land to individual families as shown by the farm divisions in the former Issyk-Kul Kolkhoz would suggest that family ties appear paramount, as opposed to the assumption of power by the former communist kolkhoz manager. Furthermore, the use of the aksakals for social and political decision-making at the local level had the effect of legitimizing the tribal power structure. This difference is significant and may explain the seeming progress of land tenure change, productivity and increased yields in the last few years, in contrast to the malaise that still affects other former Soviet republics and economies.

Patriarchy, the Role of Village Elders and the Supernatural

With the fall of the communist government, many of the former communist coordinators within the rural community were disgraced and removed from positions of authority. A large vacuum for decision making was thus created, which the existing patriarchs and the aksakals quickly filled. Initially, these decisions revolved around such issues as conflict resolution, allocation of responsibilities on the farm, and the confirmation of existing communal patterns of movement and crop selection. With the impetus given by the decree on land reform in 1994, the family patriarchs and the aksakals took on a more proactive role. In essence, by acting as *de facto* local government they have now become the social body as an individual or group with the power of decision-making

in issues of land allocation. This historic cultural power hierarchy has thus become the guiding force affecting land allocation and their resultant patterns. This ascendancy of the pre-soviet power structure has had the effect of renewing other former cultural practices. Telulah or sacrifice became more prevalent, the imam regained his former importance in society, and other religious practices became more acceptable.

Family groups

In the order to provide a necessary livelihood and security, cultural groupings are essential. In chapter four the evolution of Kyrgyz society into a rigorous structure of clans and sub-clans was seen as a defining characteristic of cultural organization. This structure was present down to the family level where each Kyrgyz could identify with his clan and family members for seven generations' back. This lineage was preserved orally, for in the absence of a written history, an oral history is necessary to sustain a cultural identity and thus bind a community. The Soviet authorities structured society along egalitarian lines, thus moving the focus of community away from the family and towards the party. With the reforms following 1991, and in particular the division of land amongst the kolkhoz and sovkhoz members, the division was made on family lines reintroducing and thus reinforcing the former system of familial and clan groups.

Latent nationalism and regionalism

Many scholars believe that the rise of Kyrgyz nationalism and the associated possible pogroms against other ethnic groups is the most volatile issue facing Kyrgyzstan today (Thurbron 1992). Ysyk-Kul Oblast is not immune to these trends. In private, ethnic Russians express concerns over the takeover of important positions of authority and power by ethnic Kyrgyz. More visible sites of significant Kyrgyz heritage such as mausoleums are receiving renovations implying increased nationalistic sentiments.

The future

This dissertation began with a statement of Medvedev that an understanding of history was crucial in understanding Soviet agriculture. It seems appropriate to conclude with the opinion of Medvedev (1987) that research is the key to understanding and thus creating policies to make economic and cultural progress:

> " Agriculture remains the basis of human existence...if a large and historically agricultural country like the Soviet Union is in a state of almost perennial food crisis it is not a local, social or economic problem. It is a general problem. It must be studied, its causes must be discovered and solutions suggested."
> Medvedev (1987.p. xi)

The most difficult part of studying and researching the former Soviet Union is the lack or inaccessibility of data. However this situation is changing. As Bradshaw (1991) pointed out, new data and sources are now becoming available and a new post Soviet geography is emerging. In the course of research for this dissertation, data that had been collected but not made available (except in official published aggregate form) were used and have been published here for the first time. Access to other national archives was possible and again, for the first time, much of the material is reproduced here. Finally, the opening up of areas such as Ysyk-Kul that were formerly closed, and the exposure of the rural people and the authorities to the value of research in the establishment and implementation of policy to create a higher living standard is making the gathering of primary data that much easier. Thus a new research agenda is emerging. The research that remains to be done may be divided as either historical geographical research or future oriented.

Historical Research

The most significant problem in historical geographical research is the lack of written histories prior to the eighteen eighties. Prior to that time, the historical record is an aural record that is impressive in its length and breadth but limited in its geographical relevance, as it is more

ethnographic than spatial. Perhaps the most valuable source of geographical documentation is the toponymic patterns throughout Kyrgyzstan that have been poorly researched. Certainly this remains a potentially fruitful area for geographic research.

More recently, the Russian and Soviet eras contain more comprehensive documentation as the basis for geographical research. The process of land settlement and clearance is in large part little understood, primarily as a result of gaps in the historical record. As some of these archives become available there is the potential for further detailed and defining research. The secrecy that permeated and pervaded the organizational and decision making processes in the Soviet Union is only now being breached. The authorities and individuals are becoming more open and candid in their description and assessment of the past and as such, represent a new avenue of research. Finally, the importance of ethnic divisions and the accompanying power elite, in both the historical and current context, are very important future areas for research.

Current and future needs.

The preceding research needs are essentially causal in effect, that is, up to 1990 planning and decision-making was essentially predicated on political expediency rather than on economic or social needs and realities. Future research for Kyrgyzstan must be orientated to the effects of that change. In the context of rural geographical research there appear to be a number of areas that require monitoring and explanation. The most important would appear to be the geography of demographic change, for it may be the most important determinant to social, political, economic and ultimately landscape change. At the local level this process has a strong linkage with land tenure reform and the agricultural mix that is therefore pursued. Finally, there is a need to understand the dynamics of supply, markets, and distribution channels as they operate in Kyrgyzstan as the basic elements in a market economy and as a prerequisite to understanding the landscape patterns that result. Similar to the system of inputs and demand, the distribution channels of the command economy effectively collapsed. Processing plants closed and thus

production had to be quickly rationalized to ensure business viability. In the case of the agricultural economy of Ysyk-Kul Oblast, this primarily involved the drastic reduction in production, primarily livestock and arable crops. Historic markets for products collapsed and thus the agricultural sector looked to local markets to absorb any surpluses. In Ysyk-Kul this facet of the changing geography was eased by the existence of periodic markets, particularly the weekly Sunday market in Karakol. This market became the major venue for the acquisition of inputs and the distribution of surplus and its importance was such that it began to physically overflow the area to which it had formerly been confined, and has now spread some two-city blocks beyond its former boundaries. It is also a feature of the changing urban geography that daily village markets are also more extensive and thus more heavily used as locations for trade.

Land Tenure

The situation that currently exists in Ysyk-Kul, with small plots of land belonging to upwards of 20 people, is unusual. Moreover, the high rate of natural increase of the resident rural population will put more pressure on the land to absorb new owners. As a result, in its broadest sense, there needs to be a continuous monitoring of the system of land tenure to assure an adequate return from the land base. In 1997 a new preliminary land code was released with proposed changes for the transfer and custody of the land base. The effects of this code, if implemented, are obvious research topics.

At the local level, the differing effects of allowing non-resident, but formerly resident, farmers to return to a village to reclaim land is still uncertain. There is a need to discover if there is a causal relationship between plot size, origin of in-migrants, ethnic or tribal background, number of farm families and overall village population change. Following this, there is a need to chart future consolidation/fragmentation and the resultant production and yields. This might lead to a more general model of push and pull factors at work in transition economies.

Crop and field systems

Vogeler (1996) indicates that in the former East Germany the removal of collectivization has created a number of new geographic phenomena, in particular the forced rural depopulation through privatization, and changes in patterns of ownership, field size and land use. He points out the irony that small parcels are now common but the cadastral pattern is not reflected in the landscape, rather the productive forces and current power structures retain the system of large fields. He goes further to suggest that this will persist "for the simple reason that large-scale farm operations and large field sizes are well-suited to industrial capitalist agriculture". At present this is only partially comparable to the situation in Ysyk-Kul Oblast, Kyrgyzstan. Rural depopulation is not occurring in large numbers and small, cultivated crop rotation fields are visible and functioning as primarily subsistence units. However, some large fields are still visible and functioning as the location for higher yield crops. As an adjunct to this research, the future role of the very important private plots will be of great value. Essentially, research is needed to chart the evolution of the Kyrgyz agricultural landscape as further privatization and possible field fragmentation occurs. Much of this work may be comparative with other transition economies.

Market dynamics

The critical economic change within Ysyk-Kul Oblast has been the change from a command to a market economy. As a result, the farmers are re-orienting the agricultural economy to the new reality; at present these realities are ill defined. Food seems plentiful, but the decision making process of the farmer and the market dynamics that get it to the consumer is little understood. There is a need to know the transportation costs associated with the new markets and the location of markets now that the markets in other republics are gone. It would seem axiomatic that now that transportation cost are no longer ignored that Kyrgyz agriculture is confined to regional or local markets unless products can be preserved or processed for transportation or the goods have high value. Based on the previous discussion there may be a market for such items as sugar, soybeans,

seeds, processed fruit juices and possibly sheep products. Associated with this redefining of markets is the role of the periodic markets, and in particular the Sunday market in Karakol and the daily markets in other communities. Finally, it would be instructive to understand what roles the individual communities are filling in the supply of goods and services now that the market decides propensity to purchase.

Lessons from the past, Guides to the future

It is the opinion of the author that the nation of Kyrgyzstan faces a difficult future. There is little mineral base from which to develop and agriculture is very difficult. Human resources have a history of low productivity and inertia and do not seem inclined to change. This is particularly problematic given the reluctance of the rural community to adopt the private farm model that has proved so successful in other parts of the former communist block (Prosterman, and Hanstad 1995, and other Rural Land Institute studies). Clearly the future must be made out of something else. At present, the most pervasive trend has been the emergent role of the old culture. Unfortunately, as has been shown, the traditional nomadic culture shows little promise for integration into a world economy and yet it is the one feature that has provided a measure of stability and organization through a very disruptive period. It is suggested that this pervasive influence will guide the country in the short term. In essence, subsistence agriculture and a continuing decline in the relevance of Kyrgyz contributions to a world economy will be the hallmarks of the nation. Counteracting this movement has been the receipt of significant international aid on the part of such agencies as US.AID, Winrock International and TACIS. It has had the effect of stabilizing the currency and has provided some institution building and humanitarian assistance. Indeed there is the beginnings of a transparent and workable legal system, the presence of a functioning stock market and a freeing up of educational opportunities that permit university and non-traditional students to undertake studies in higher education out of the country. Unfortunately private investment capital has not yet gravitated to Kyrgyzstan, in large part because of the small market and hence small

financial returns. However Kyrgyzstan will probably find itself the center of attention for some time owing to its position astride the Eurasian continent Eurasia and thus its ability to address both the Muslim and western world. This importance has been recognized not only in the receipt of the highest per capita aid amount from the U.S of all the former Soviet countries but also in the involvement of the Asian Development Bank and other Asian institutions in the future of the country. Thus with the favorable status under which Kyrgyzstan is viewed in the west and the recognition of its Asian ties may serve to provide assistance into the twenty-first century. This view is reinforced when considering the geopolitical evolution of China. To date the Chinese have sought to play the role of statesman and neighbor though that could change with any recalcitrant behavior both within and outside Chinese borders.

Within Kyrgyzstan strategically the country needs to find a niche for itself in the world market and exploit this position. The advanced education level of the citizens, their access to the world through exchange programs and the Internet would suggest the niche would be one utilizing an educated mobile labor force. Research is needed on such possible economic development growth options. Such research will be extensive, multi-disciplinary, and multi-faceted, carrying long-range consequences. As a start this geographical dissertation, as the only study of its kind completed since Kyrgyzstan gained independence, documents much of the geographical nature and change in the republic. Without such an understanding of the underlying processes of change and the results of change rational economic policy cannot be developed. Without such policy guidelines there is a real danger that the standard of living of the Kyrgyz could fall even further, leading to political and social disruption and chaos. The ultimate result of such a course is hard to predict, but invariably it will be worse than even the very disturbing current situation. On the other hand, if the research contributes to an improvement in the current economic and social situation in the nation, Kyrgyzstan can join the ranks of the nations that enjoy a stable, productive and economically advantaged society.

ENDNOTES

[1] Defined by Pallot as "the process whereby people are turning to semi-subsistence forms of farming as an insurance against the risks of post communist transition"

[2] Pallot has recognized the acquisition of personal plots by non-agricultural workers for subsidiary or "Hobby" farming in other parts of the former Soviet Union. In Kyrgyzstan the land banks were ostensibly set up for such a new farmer. In reality the fact that Ysyk-Kul oblast is such a rural oblast and hence most residents already owned private plots and the distance (5 hours) from the major urban center of Bishkek has seemed to mitigate against such a trend in Ysyk-Kul.

BIBLIOGRAPHY

Andrev, Nikolai "Kyrgyzstan: grappling with democracy" *Bulletin of the Atomic Scientists*, v50, n1, (Jan-Feb 1994), p 520.

Azamova, Asal "Askar Akayev" *Moscow News*, n3553, (Nov.15 1992) p10

Bacon, Elizabeth E. *Central Asians under Russian Rule: A Study in Culture*, Cornell University Press, Ithaca, NY 1966.

Banks, John and **Ebel**, R. "Kyrgyzstan: problems and opportunities" *The Oil and Gas Journal*, v91, n11, (Mar.15 1993) p26-27.

Barshay, Alexander "Kumtor: Gold from the earth will be gold in the bank " *Kyrgyzstan Chronicle*, n27, (83) (July 5-11, 1995) p1-2

Bayalinov, K. "Sometimes in the interests of ones people one has to embrace someone" *The Current Digest of the Post-Soviet Press*, v44, n42, (Nov.18 1992) pp. 7-8

_____. "The Fergana valley awaits its drug lords" *Moscow News*, n44, (Nov.4 1994) p6.

Beijing Review "Links with two new states" (Jan. 20 1992), p12.

Bernard, Philippe J. *Planning in the Soviet Union* Pergamon Press, Oxford 1966.

Blache, Jules *L'Homme et la montagne* Paris: Gallimard 1934.

Bloch, Peter, James M. **Delehanty** and Michael J. **Roth**. (Eds.) *Land and Agrarian Reform in the Kyrgyz Republic* 2 Vols. Technical Report and Consolidated Plan. Republican Center for Land and Agrarian Reform. Ministry of Agriculture and Food, Bishkek, Kyrgyzstan and Land Tenure Center, Univ. of Wisconsin, Madison, Wis. 1995.

Bond, Andrew R. and **Micklin**, P.P "Issyk-Kul resort zone under environmental pressure" *Post-Soviet Geography*, v34, n5, (May 1993) pp.326-330.

Bowler, A.H. Agrarian reform in Eastern Europe, in Pacione, Michael (ed.) *Progress in Agricultural Geography* Croom Helm London 1986.

Bradshaw, Michael J. (ed.) 1991 *The Soviet Union: A new Regional Geography?* Belhaven Press, London 1991.

_____"Post-Soviet Geography: Rising to the Challenges of transition" *Post-Soviet Geography* v33, n4, (March 1992) pp.146-150.

_____ (ed.) 1997 *Geography and transition in the Post-Soviet Republics* Wiley Press, London 1997.

Brooks, Karen and **Lerman,** Zvi. *Land reform and Farm Restructuring in Russia.* World Bank Discussion Paper No.233 World Bank, Washington, DC 1994.

Brooks, Karen, **Krylatykh,** E., **Lerman,** Z., **Petrikov,** A., and **Uzun,** V. *Agricultural Reform in Russia: A view from the Farm Level* World Bank Discussion Paper # 327, The World Bank, Washington, DC 1996

Brown, Bess "Central Asia: the economic crisis deepens" *RFE-RL Research Report*, v3, n1, (Jan 7 1994) pp. 59-70.

_____"Central Asia emerges on the world stage" *RFE-RL Research Report*, v1, n1, (Jan 3 1992) pp. 51-57.

_____'Three Central Asian States form economic union" *RFE-RL Research Report*, v3, n13, (April 1 1994) pp. 33-36.

Brown, Bess and **Tedstrom,** J. "Kazakstan and Kyrgyzstan: Central Asia's leaders" *RFE-RL Research Report*, v1, n17, (April 24 1992) pp. 58-64.

Braverman, Avishay, **Brooks,** Karen and **Csaki,** Csaba *Agricultural Transition in Central and Eastern Europe and the former USSR.* Proc. of a World Bank Symposium, World Bank, Washington, DC 1992.

Brukoff, Patricia, A. The Unwilling State: exploring Kazakhstan's resistance to economic autonomy in the post-Soviet period. Unpublished Ph.D. Dissertation The Rand Graduate Institute 1994.

Cameco Corp. *1996 Annual Report* Saskatoon, Saskatchewan, Canada 1996

Carana Corporation *Kyrgyz Wheat-Flour-Bread System Analysis* Post-Privatization Enterprise Restructuring and Support project conducted for United States Agency for International Development Unpublished, Bishkek, February 29,1996.

Carlson, Alvar W. "*Long-Lots in the Rio Arriba*" Annals of the Association of American Geographers. Vol. 65, N.1, (March 1975), pp.48-57.

Cernea, Michael M. (ed.) *Putting People First: Sociological variables in Rural Development.* (New York. Oxford Univ. Press 1991.

Chambers, Robert *Rural Appraisal: Rapid, relaxed and participatory.* Institute of Development Studies Discussion Paper # 311, University of Sussex, 1992).

Chtchetnikov, Nicolai, **Petrov,** V and **Lewis,** C. "The mystery of Marzbacher" *Geographical Magazine*, v66, n11, (Nov.1994) pp. 24-25

Chukin, Almas "Free Kyrgyzstan: Problems and Solutions" *Current History*, v 93, n 582, (Apl. 1994) p.169.

Clem, Ralph (ed.) *Research guide to the Russian and Soviet Censuses* Cornell University Press, Ithaca, New York 1986.

Collins, Kathleen *Clans, parties and politics: the failure of political parties in "democratic" Kyrgyzstan* unpublished paper. Given at the Soyuz conference, New York University March 1998

Commission of the European Communities *Assistance for improvement of the livestock sector: Mission of the Pasture Management Specialist* Project # TACIS/A&F KYR 9301 prepared by sa AGRER nv Bruxelles, Belgium Sept.1995 (a).

_____*Assistance for improvement of the livestock sector: Report on assistance to develop the profitable marketing of meat, meat products and by-products in the private sector of the Republic of Kyrgyzstan.* Project # TACIS/A&F KYR 9301 prepared by sa AGRER nv Bruxelles, Belgium Sept.1995 (b).

_____*Assistance for improvement of the livestock sector: Report on the current situation and development prospects for the meat industry in Kyrgyzstan. Focus on the prospects for the associations of private producers being established in Osh and Naryn Oblasts.* Project # TACIS/A&F KYR 9301 prepared by sa AGRER nv Bruxelles, Belgium 1995 (c).

_____*Assistance for improvement of the livestock sector: Animal Feeding Report* Project #TACIS/ A&F KYR 9301 prepared by sa AGRER nv Bruxelles, Belgium Aug.1995 (d).

_____ *A Survey of Private Farmers in Naryn.* Project # TACIS/A&F KYR 9301 (first draft) prepared by sa AGRER nv Bruxelles, Belgium Feb.1996

_____ *Assistance for supplying Agricultural Inputs and Services to private Farmers in Kyrgyzstan Review Report and Annexes* TACIS Project # KYR9302, prepared by Euroconsult & AgriPro, Arnhem, The Netherlands August 1995 (e).

_____ *Report on Communal Grazing Issues* TACIS/92/A.F. Kyr.001 Sectoral Support to the Ministry of Agriculture, prepared by ULG Consultants, Warwick, England July 1994.

Craumer, Peter R. "Regional Patterns of Agriculture reform in Russia" *Post-Soviet Geography* v, n6, (June 1994) pp. 329-351.

Cuff, Daniel F. "A little Republics negotiator" *The New York Times*, v142, Sec.3, pF8, col. 1. (Oct. 25 1992)

Daniels, Anthony "Back in the USSR" *National Review*, v 47, n6, (April 3 1995) pp22-24

Dawson, C.R. Agriculture and Urban Development in Pacione, Michael (ed.) *Progress in Agricultural Geography* Croom Helm London 1986.

Delehanty James and Kathryn **Rasmussen** "Land Reform and Farm Restructuring in the Kyrgyz Republic" *Post-Soviet Geography*, v 36, n9, (June 1995) pp. 565-586.

Denisenko, Yevgeny "Russians on the threshold of Rush Hour" *The Current Digest of the Post-Soviet Press*, n24, (July 13 1994) p13

Dienes, Leslie. "Pastoralism in Turkestan: Its Decline and Its Persistence." *Soviet Studies* 27:3 (1975): 343-65.

_____*Soviet Asia: Economic Development and National policy choices*, Westview Press, Boulder Colo. 1987.

Dorian, James, P., **Sheffield Rossi**, I., and **Indriyanto**, S.T. "Central Asia's oil and gas pipeline network: current and future flows" *Post-Soviet Geography* v36, n7, (Sept.1994) pp. 412-430

Dunlop, John. D, Will Russians return from the Near-Abroad?" *Post-Soviet Geography* v36, n4, (Jan 1994) pp. 204-215

Economist "The Battle of the Som; Central Asia" v327, n7813, (May 29 1993) p42

_____"Leave it to the boss: Kyrgyzstan" v334, n7901, (Feb. 11 1995) pp. 35-36.

_____"Who's winning and who's losing: Russia's southern flank" v329, n7857, (Nov.13 1993), p.61.

_____"The invalid responds to treatment: Kyrgyzstan" v333, n7893, (Dec 10 1994), p. 33.

_____"On the Map" *Economist*, v326, n7799, (Feb 20,1993) p33.

_____"The Cost of Monetary Chaos" v329, n7838, (Nov 20 1993) p87.

_____"Deadly Secret" v333, n7892, (Dec 3,1994) p 45-46.

Edwards, Mike, "Searching for Scythians" National Geographic Magazine. v.190, n.3, Sept. pp. 54-79, 1996

Eickelmann, Dale F. *The Middle East and Central Asia: an anthropological approach.* Prentice-Hall, New Jersey 1998

Elebayeva, Aynur B. "The Osh incident: problems for research" *Post-Soviet Geography* (Feb 1992), v33, n2, pp. 78-89.

Facts on File "Industrial Output falls, inflation rises" Oct 14,1993

_____"Kyrgyzstan joins Central Asian Union" v54, n2775, (Feb. 3 1994) p 67.

Faucher, D. "Les mouvements migratoires actuals et les influences agissant sur leur caractere, " *Comptes Rendus du Congres International de Geographie, Amsterdam, 1938* II Rapports (Leiden) 1938 pp.83-89.

Feshbach, Murray and Alfred **Friendly**, Jnr. *Ecocide in the USSR: Health and Nature under siege*, Basic Books, New York 1992.

Filatatotchev, Igor V. and Roy P. **Bradshaw** "The Geographical impact of the Russian Privatization Program" *Post-Soviet Geography*, v36, n6, (June 1995) pp. 371-384.

Forbes, Malcolm S. Jnr. "Amazing Metamorphosis" *Forbes*, v154, n4, (Aug 15 1994) p26

Friedman, Thomas L."10 Ex-Soviet republics gain wider recognition" *The New York Times*, v141, pA6 col. 1. (Jan 31, 1992)

Gan, Maksim "Central Asian States join Islamic states' trade bloc" *The Current Digest of the Post-Soviet Press*, v44, n48, (Dec 30 1992) pp.18-19

Geroy, Gary D. and **Carroll** J.B. "Helping or hindering: should western OD have an unfettered passport to the C.I.S.?" *Human Resource Development Quarterly*, v5, n3, (Fall 1994) pp. 281-284.

Giovarelli, Renee *Land Reform and Farm Reorganization in the Kyrgyz Republic* RDI Report on foreign aid and development # 96, Rural Development Institute, University of Washington, Seattle, Wa. 1998

Graham, Stephan. *Through Central Asia* Macmillan, New York 1916.

Grousset, Rene *The Empires of the Steppes; A history of Central Asia* (Trans: Naomi Walford) Rutgers University Press, New Jersey.1970.

Hansted, Tim *Are Smaller farms appropriate for former Soviet Republics?* RDI Report on foreign aid and development # 97, Rural Development Institute, University of Washington, Seattle, Wa. 1998

Harris, Chauncy, D. *Guide to Geographical bibliographies and reference works in Russian or on the Soviet Union* University of Chicago Research Paper No.165. Chicago: University of Chicago Press 1975.

_____. "The new Russian minorities: A statistical overview" *Post-Soviet Geography*, v34, n1, (Jan.1993) pp.1-28.

_____ "Ethnic tensions in the successor republics in 1993 and early 1994" *Post-Soviet Geography* v.35 n4. (Jan 1994) pp.185-203

Hatto, Arthur.T. (ed.) *The Memorial Feast for Kokotoy-Khan (Kokotoydun Asi) A Kyrgyz Epic Poem.* London Oriental Series. Vol. 33, Oxford University Press 1977

_____ (re-ed.) *The Manas of Wilhelm Radloff.* Asiatische Forschungen, Band 110, Otto Harrassowitz, Wiesbaden, Germany 1990.

Heleniak, Tim "The changing nationality composition of the Central Asian and Transcaucasian states" *Post-Soviet Geography*, v.38, n6, (Jan 1997), pp. 357-378

Hopkirk, Peter *Foreign Devils on the Silk Road: the search for treasures on the Silk Road.* Oxford University Press, Oxford.1980.

Hoskins, William G. *The Making of the English landscape* Hodder and Stoughton, London 1955.

Hourani, Albert *A History of the Arab Peoples*. Warner Books, New York 1991.

Hunter, Shireen.T. *Central Asia since Independence*. Praeger, Westport, Ct.1996.

Huskey, Eugene, "Kyrgyzstan: the fate of political liberalization" in *Conflict, cleavage and change in Central Asia and the Caucasus* Karen Dawisha and Parrott, B. Cambridge University Press 1997 pp.241-277

_____"Kyrgyzstan leaves the ruble zone" *RFE-RL Research Report*, v2, n35, (Sept 3 1993) pp.38-42

Ironside, Robert G. and E. **Tomasky** "Agriculture and River lot settlement in Western Canada: The case of Pakan (Victoria), Alberta," *Prairie Forum* Vol.1, 1 (1976), pp. 3-18.

Jordan, Terry, G. "Antecedents of the Long-Lot in Texas" *Annals of the Association of American Geographers.* Vol.64, n.1, (March 1974) pp.70-86.

Kaplan, Robert. *The Ends of the earth: a journey at the Dawn of the 21 St. Century.* Random House, New York 1996.

Karabekov, Kabei, "How a famous Kyrgyz writer privated a famous hotel" *The Current Digest of the Post-Soviet Press*, v46, n27, (Aug 3 1994) p 20.

Kareschkulov A. (ed. in chief) *Kyrgyz Encyclopedia: Ysyk-Kul Region* Bishkek 1995

Killick, Tony "The possibilities of Development Planning" *Oxford Economic Papers,* 41, No.4, (1976) pp.161-184.

King, John, **Noble,** J. and **Humphreys,** A. *Central Asia: A Lonely Planet Travel Survival Kit.* Lonely Planet Publications, Melbourne, Australia 1996.

Kirschten, Dick "Kirgyzstan's go-getting ambassador" *National Journal* 1993, v25, n41, (Oct. 9) p2442.

Klimenko, Vladimir "A tale of two countries: report from Central Asia" *Mother Jones*, v18, n4, (July-Aug. 1993) pp.54-58

Koichuev, T.K. et al (eds.) *Manas Epos and the World's Epic Heritage. Theses of the International Scientific Symposium devoted to the Manas Epos Millennial Anniversary* Muras Publishing House, Bishkek 1995.

Konovalev, Valery "The som is not sinking: why not?" *The Current Digest of the Post-Soviet Press*, v46, n421, (June 22 1994) pp.21-22

Krader, Laurence *Peoples of Central Asia* Indiana University Publications, Uralic and Altaic Series, Volume 26, third edition, University of Indiana, Bloomington, Ind.1971 pp.296.

Lerman, Zvi, and **Garcia-Garcia,** J and **Wichelns,** D "Land and Water Policies in Uzbekistan Post-Soviet Geography, March 1996 pp. 145-174.

Lewis, Robert A. (ed.) 1992 *Geographic Perspectives on Soviet Central Asia* Routledge, London 1992.

Lewis, Robert A., Richard H. **Rowland** and Ralph S. **Clem.** *Nationality and Population change in Russia and the USSR. An evaluation of Census Data 1897-1970.* Praeger, New York 1976.

Levine, Steve "After Karl Marx, a 1,000-year-old Superman " *New York Times*, v144, pA4, col. 1. (Aug.31, 1995)

Longworth, John W. and Gregory J. **Williamson.** *China's Pastoral Region* CAB International, Wallingford, England 1993.

Lubin, Nancy "Central Asia's drug bazaar" *The New York Times*, v142, pA13, col. 4. (Nov 16,1992)

Maillart, Ella *Turkestan Solo* C.P. Putnam, New York. 1935.

Manas. Kyrgyz Heroic Epos (Oral version by Sagymbai Orozbakov, Trans: Walter May)"Door" Publishing House, Bishkek, 1995.

Martin, Keith "China and Central Asia: between seduction and suspicion" *RFE-RL Research Report*, v3, n25, (June 24 1994) pp. 26-37.

McIntosh, Christopher, "To market, to market: Navigating the road to Privatization" *Futurist*, vol. 28, n1, (Jan-Feb 1994), pp24-28

Medvedev, Zhores. *Soviet Agriculture*. W.W. Norton and Co. New York 1987.

Meitzen, August *Siedlung und Agrarwesen der Westgermanen und Ostgermanen, der Kelten, Romer, Finner, Slaven* 3 vols. and atlas Berlin Hertz, 1895

Mitchell, Robert *On Development of Agrarian Reform in Kirghizia.* Rural Development Institute, Seattle, W. 1995.

Nazaroff, Paul (Pavel Stepanovich) *Hunted through Central Asia* (Trans: Malcolm Burr) Oxford University Press, 1993.

New York Times. "Officials say U.S. is seeking Central Asian trade accords" v141, pA6 col. 6 (Feb. 10,1992).

_____"General Electric to build Central Asian Dam" v142, pC4 col. 1. (Oct. 14,1992).

_____"Investments in gold project" v144, p28, col. 5. (Nov. 12,1994)

_____"Vote in ex-Soviet Republic supports reform" v143, pA5 col. 3. (Feb 1,1994).

Noren, James H. "Statistical Reporting in the States of the Former U.S.S.R" *Post-Soviet Geography*, v35, n1, (Jan.1994) pp. 13-37.

The Oil and Gas Journal "U.S. Exploration Inc.", v91, n41, (Oct 11 1993) p.2-3.

_____ "Oil exploration has gotten underway in Kyrgyzstan " *The Oil and Gas Journal* v91, n43, (Oct 25 1993), p 34.

_____ "Natural Gas" v93, n1, (Jan 02 1995) p30.

_____"EIA assesses the Fergana basin in FSU " v93, n3, (Jan 16 1995) p31.

Olcott, Martha Brill "Central Asia's catapult to independence" *Foreign Affairs*, v71, n3, (Summer 1992) pp. 108-131.

_____ "Central Asia: The calculus of Independence" *Current History*, v 94, n 694 (Oct 1995) pp. 337-342

_____*Central Asia's new states: independence, foreign policy and regional security* United States Institute of Peace Press. Washington, DC.1996.

Pacione, Michael (ed.) *Progress in Agricultural Geography* Croom Helm London 1986.

Pallot, Judith. " in Bradshaw Michael J. (ed.) *The Soviet Union: A new Regional Geography?* Belhaven Press, London 1991.

Pallot, Judith. "Continuity and Change in the Soviet Countryside" in Bradshaw, Michael J. (ed.) 1997 *Geography and transition in the Post-Soviet Republics* Wiley Press, London 1997.

Pierce, Richard A. *Russian Central Asia 1867-1917, a study in Colonial rule.* Berkley, University of California Press, 1960

Pearce, Nigel "Manas From Heaven" *History Today*, v45, n8, (August 1995) pp. 3-4.

Pilkington, John "Kyrgyzstan: A Tale of Two Journeys" *Geographical*, v65, n4, *Magazine (*April 1993) pp. 8-13

Prior, Daniel *Bok Murun's Itinerary Ridden; Report on an expedition through Kirghiz Epic Geography* Unpublished Ms, Bishkek 1996.

_____*Bishkek Handbook: inside and Out* Literary Kyrgyzstan, Bishkek 1994.

Prosterman, Roy, **Rolfes**, Leonard J., and **Mitchell**, Robert G. "Russian Agrarian Reform: a status report from the field" *Communist Economies and Economic Transformation*, vol. 7, no.2, (1995)

Prosterman, Roy *Land Reform in the formerly (or still) centrally planned economies* RDI reports on foreign aid and development # 82, Rural Development Institute, Seattle, WA. 1993.

Prosterman, Roy, and **Rolfes**, Leonard J., *Land reform and farm restructuring in the Republic of Kirghizstan: RDI report as a result of field research under the auspices of the Oct.1993 World Bank Agriculture sector review*. Rural Development Institute, Seattle, Wa. 1994.

Prosterman, Roy and **Hanstad**, Tim *Land Reform: Neglected in the formerly (or still) centrally planned economies* RDI Reports on Foreign Aid and Development # 87 Rural Development Institute, Seattle, Wa. 1995.

Prosterman, Roy, **Hanstad**, Tim and Leonard J. **Rolfes**, Jnr. *Recommendations to assist the agrarian reform process in Kyrgyzstan* RDI Reports on Foreign Aid and Development # 75, Rural Development Institute, Seattle, Wa. 1992.

Pryde, Ian, "Kyrgyzstan: The trials of Independence" *Journal of Democracy*, v5, n1, (Jan 1994) p109.

_____"Kyrgyzstan: Secularism versus Islam" *World Today*, v48, n11, (Nov.1992) p208

Pumpelly, R, *Explorations in Turkestan; The expedition of 1904, Prehistoric Civilizations of Anau* Carnegie Institute of Washington, D.C. 1908

Rashid, Ahmed "Chinese Challenge: Li Peng visit highlights Beijing's growing role in region" *Far Eastern Economic Review*, v157, n19, (May 12 1994) p30.

_____ "Out of Steppe: Kyrgyzstan faces opposition to the new currency " *Far Eastern Economic Review* v156, n24, (June 17 1993) p30.

Razgulyayev, Yury, "Our doorstep is already on fire" *The Current Digest of the Post-Soviet Press*. v44, n42, (Nov18, 1992) p20-21.

_____"Promise of a cold Hearth" *The Current Digest of the Post-Soviet Press*, v46, n29, (Aug. 17 1994) p23.

Romanov, Yuri "Combating Drugs on a shoestring" *Moscow News*, v26, n3533, June 28 1992 p8.

Rotar, Igor "Askar Akayev on the Russian problem" *The Current Digest of the Post-Soviet Press*, v, n8, Mar 23 1994 p26-27

_____"Askar Akayev loves 'NG' (Nezavisimaya Gazeta)" *The Current Digest of the Post-Soviet Press*, v, n12, (Apl. 20 1994) p23.

Rumer, Boris.*Central Asia in transition: dilemmas of political and economic development* (Sharpe, Armonk, New York 1996)

Sahlins, Marshall *Islands of History* University of Chicago Press, Chicago, Ill.1985.

Schroeder, Gertrude E. "Observations on Economic Reform in the successor states" *Post-Soviet Geography* v 34, n1, (Jan.1994) pp. 1-12

Schuyler, Eugene. *Turkistan; notes of a journey in Russian Turkistan, Khokand, Bukhara and Kuldja.* Scribner, Armstrong & Co, New York, 2 vols. 1876.

Selden, Mark "Russia, China and the transformation of collective Agriculture" *Contention: Debates in Society, culture and science*, vol. 3, (Spring 1994), pp. 73-93.

Shermatova, Sanobar "Askar Akayev on the new Kyrgyzstan" *Moscow News*, n25, (June 24 1994) p5.

Smith, David R. "Environmental Security and Shared Water Resources in Post-Soviet Central Asia" *Post-Soviet Geography* vol. 36, n6, (June 1995), pp.351-370.

Spector, Michael "Meet Stan, and Stan, and..." *The New York Times*, v144, Sec.4, pE3, col. 1. (May 7 1995)

State Commission for Foreign Investment and Economic Assistance ("*Goscominvest*") *Issyk-Kul Regional Economic Strategy* Unpublished Bishkek 1996.

Stanseth, Dagfinn "The New Russia, CIS and the future" *Security Dialogue*, v23, n3, (Sept 1992) pp.19-26

Stebelsky, Ihor "Ukrainian peasant Colonization east of the Urals 1986-1914" *Soviet Geography* Vol.25 (1984) pp. 681-94.

_____"The toponymy of Ukraine" *Post-Soviet Geography and Economics*, 38,n6, (1997), pp. 276-287

Stein, Aurel "Explorations in Central Asia" *The Geographical Journal* Vol. 34. (July and October 1909).

Strong, Anna Louise *The road to the Grey Pamir* Robert McBride and Co, New York 1930.

Swafford, Michael "Sociological Aspects of survey research in the Commonwealth of Independent States" *International Journal of Public opinion Research*, v4, n4, (Winter 1992) pp. 346-357.

Todero, Michael.P. (ed.) *Economic Development*. Longman New York 6 ed. 1996.

Trofimov, Vladimir "Kyrgyz som is swimming on its own" *The Current Digest of the Post-Soviet Press*, v45, n20, (June 16 1993) p21-22

United States Department of State dispatch *U.S. Kyrgyzstan trade and investment agreements*, v3, n20, (May 18 1992) p. 395.

United States Department of Defense, Defense Intelligence Agency Unpublished Memorandum provided to Public Affairs 9-15-1997 under a request under the Freedom of Information Act 1974.

Usuvaliyev, M.U. and **Toktonaliyev**, K.T. "Exploratory drilling results, directions in Kyrgyzstan " *Oil and Gas Journal*, v92, n30, (July 25 1994) p107-108

Vogeler, Ingolf. "State Hegemony in transforming the Rural Landscapes of Eastern Germany: 1945-1994" *Annals of the Association of American Geographers* 86.3. (1996) pp. 432-458

Watson, Robin, A. "Interrepublic Trade in the former Soviet Union: structure and implications" *Post-Soviet Geography*, v 34, n7, (Mar 1994) pp.371-408.

Wegren, Stephen "Agricultural reform in the non chernozem zone: the case of Kostroma Oblast " *Post-Soviet Geography*, v33, n10, (1992) pp. 645-685

Wheeler, Geoffrey *The modern history of Soviet Central Asia* Praeger, New York 1964

Whittell, Giles *Central Asia: The Practical Handbook* Cadogan Guides, London 1990.

World Bank *Kyrgyzstan: Social Protection in a reforming economy* A World Bank Country Study. The World Bank, Washington, D.C. 1993.

_____*Kyrgyzstan: the transition to a market Economy.* A World Bank Country Study World Bank, Washington, DC 1993.

_____*Food and Agricultural Policy reforms in the former USSR: An agenda for the transition* Studies of Economies in transition No.1. World Bank, Washington, D.C.1992.

_____ *The Kyrgyz Republic: Agricultural Sector Review* Agriculture, Industry and Finance Division, Europe and Central Asia Div. World Bank, Washington, D.C. 2 vols.1994.

Zhao, Yueyao *Xinjiang and Central Asia: Ethno-religious, political and economic interactions (China, Russia)* Unpublished MA thesis, Florida International University 1993, pp. 307

Zurawicki, Leon and **Becker**, K. "Marketing issues and strategies for change in the Central/Eastern European and C.I.S. Countries *Journal of Euromarketing*, v3, n2, (1994) pp. 61-90.

APPENDICES

Appendix A. Menu of methods for Rapid Rural Appraisal

Appendix B. List Of Contacts

Appendix C. Glossary of Terms

Appendix D. Russian language Statistical and Literary Sources

Appendix E. Official Kyrgyz Government Decrees and Resolutions pertaining to Land Reform, 1991-1997 and their impact on Governance and land allocation.

Appendix F. List of Equivalents

Appendix G. Annotated selection of Images and Historic map reproductions.

Image 1. Kyrgyz House built circa 1920

Image 2. Kyrgyz house and lot, Karakol 1996

Image 3. Large house, Village of Telekmat, Djeti Oguz Rayon 1996

Image 4. Rural Village landscape, Village of Telekmat 1997.

Image 5. Land Cultivation, Village of Telekmat 1997.

Image 6. Rural Landscapes, West of Jyldyz, Ak Suu Rayon 1997.

Image 7. Long Lots, West of Village of Jyldyz, Ak Suu Rayon 1997.

Image 8. Administrators House, Karakol 1996.

Archive Map 1. Land Clearance Chalba region, Djeti Oguz 1868

Archive Map 2. Karakol and environs 1886

Archive Map 3. Karakol and environs 1910

Archive Map 4. Dachas for Karakol residents on the shore of Issyk-Kul 1912

Archive Map 5. Town Plan Teplokluchenka 1886

Archive Map 6. The area around Teplokluchenka 1884

Archive Maps 7a and b. Land Clearance for agriculture Tyup 1895-1925

Archive Map 8. Regional Settlements Eastern Ysyk-Kul date unknown

Archive Map 9. Pokrovka to Marinsky 1910

Archive Map 10. Boz Uchuk 1899

Map 11. Mahmud al-Kashgari's Eleventh Century (?) map of the Ysyk-Kul region.

Map 12. Portion 1:200,00 Ysyk-Kul Oblast sheet

Appendix A.

MENU OF METHODS FOR RAPID RURAL APPRAISAL

after Chambers(1991).

Secondary Data Review

Review of published and unpublished data including surveys, studies, annual reports, trip reports, travel books, ethnographic literature, articles, maps, aerial photographs, satellite images and computer data files

Direct Observation

Personal visits and observations with follow-up and checklist as aid.

Do-it-yourself

Brief participant observation

Key Indicators

Shortcuts to insights especially when suggested by locals

Semi-structured interviews

Informal interview with checklist not questionnaire with probing and follow up on the unexpected

Key Informants

Authorities on topics, individuals or groups

Group Interviews

Interviews and discussions with community groups, casual groups, focus groups, and other structured groups with differing viewpoints in the group

Chain of interviews

Sequence of interviews to cover stages of a process (e.g. planting to harvest) or follow

through after a previous interview. Interviews in different context(during a walk) and interviews following earlier identification of a key person.

Transects and group walks

Systematic walks(high to low point) to visit and observe diversity and micro- environment.

Mapping and Aerial photographs

Use of formal or informal maps based on observation or local knowledge. Aerial photo's for ecological, social and political mapping

Diagrams

Depicting spacial change(transects),temporal change(Trend lines),seasonal change. Dimensions include labor, diet, disease, cropping practices, prices, livestock fodder, migration, and tree use. Social change-group dynamics and processes. May be drawn as sketches, bar graphs, histograms, flow diagrams, Venn diagrams, and decision trees.

Ranking, stratifying and quantification

Atte board, wealth ranking from interviews or depiction on pie graph.

Ethnohistories

Histories recounted and recalled by rural residents.

Stories, portraits and case studies

Anecdotes and descriptions of people, households, farming systems social groups, villages, events, customs, practices.

Team interactions

Pairing of different social scientists to obtain cross-fertilization of information

Key probes

Asking simple yet key questions

Questionnaires

Late and light tied in with dummy tables and analyzed quickly.

Appendix B.

LIST OF CONTACTS AND INTERVIEWS

Note: Many persons were interviewed and proffered information on the condition that their names were not published and hence this list is NOT exhaustive.

Abdraskerov, Djmabei, Private Farmer, former head of Kolkhoz and now land-use coordinator Sara Kumysh village, Ysyk-Kul Oblast, Kyrgyzstan.

Abdulkarimov, Mukta, General Manager of "Agricultural Association named after Sadhikov" and former head Kalinen Collective Farm, Osh, Kyrgyzstan.

Abdudaiev, Jalyl Chairman of the local village committee Village of Jargylchek and former Ak Terek Sovkhoz. Ysyk-Kul Oblast.

Antonina, Zakharova, Historian and Private Scholar, Academy of Sciences, Osh, Kyrgyzstan.

Ashimov, Shamrat. Professor of History, Kyrgyz State University, Karakol.

Ayab Nashan Lo. (Dungan) Unemployed Driver, Er Dik village, Djeti-Oguz Rayon, Ysyk-Kul Oblast.

Baimourzaev, Talant. Farmer and Head of Association of Peasant Farms, Tyup, Ysyk-Kul Oblast.

Begaliev, Bektor. Retired Farmer, Village of Dzergalen, Ak Suu Rayon, Ysyk-Kul Oblast

Begaliev, Sopubek Begalievich, Chairman, Assembly of People of Kyrgyzstan and former Head Gosplan, Kyrgyzstan.

Bergman, Juris Georg, Country Director-Kyrgyzstan, Farmer-to-Farmer program, Winrock International, Bishkek, Kyrgyzstan.

Callazi, Paula, Carana Corp. Enterprise Support and Restructuring Project, for U.S. AID Bishkek, Kyrgyzstan.

Choresh, Avi. Agriculture and Irrigation advisor, Joint U.S. - Israel agricultural Program in Kyrgyzstan, Embassy of Israel, Bishkek.

Chabot, Phillippe, Sheep Husbandry Expert, S.A. Agrer N.V. Consultants under TACIS project A&F KYR 9301 for the assistance for improvement of private livestock sector, Naryn, Kyrgyzstan

Ergechov, Abjapar A. Head of the Chair of Physical Geography and Vice-President of the movement "Tabiat", Osh State University, Osh, Kyrgyzstan.

Evaliev, Bektimir, Taxi Driver and former resident Chalba (Telekmat). Djeti-Oguz Rayon, Ysyk-

Kul Oblast.

Grey, Kenneth, Senior Economist, U.S. Department of Agriculture, Economic Research Service, Washington, D.C.

Hancock, David, President, Aztec-Talas Inc. Las Vegas, Nevada.

Hart, Donald, Attorney-at-Law and Team Leader, US AID Securities and Market Institutions Development Project, Arthur Anderson LLP, Bracewell and Patterson, LLP, Bishkek, Kyrgyzstan.

Hatto, Arthur, Professor Emeritus, School of Oriental and African Studies, Queen Mary College, University of London, U.K.

Holst, David Head, TACIS coordinating Office, Bishkek.

Ibraev, Amankelde, Private Farmer, Tyup, Ysyk-Kul Oblast, Kyrgyzstan.

Imanlieva, Akilbek. Farmer and head of Association of Farmers, Village of Sovietska, Ak Suu Rayon, Ysyk-Kul Oblast.

Imanlieva, Zaira. Retired Housewife 69 years of age Village of Sovietska, Ak Suu Rayon, Ysyk-Kul Oblast. (Mother of Akilbek)

Keneshbek, Kokoev, Private Farmer and former Party Secretary, Panfilovsky rayon, Chui Oblast, Kyrgyzstan.

Klawonn, William, Trade and Investment/WTO Attorney, Booz-Allen & Hamilton, Development, Trade and Investment Project, for U.S. AID Bishkek, Kyrgyzstan.

Kojobekova, Juzumkan. Retired housewife.96 years old Village of Sovietska, Ak Suu Rayon, Ysyk-Kul Oblast

Kuchukov, Uzak. Retired (91 years of age) Director of Kolkhoz, and Aksakal in Village of Sokolovka, Ak Suu Rayon, Ysyk-Kul Oblast.

Kulnazarov, Bolot K. Head of the Chair of Zoology and General Ecology, Osh State University, Osh, Kyrgyzstan

Mambetov, Jainbeck Regional Director, "Kyrgyzprozem" Karakol.

Mantion, Pierre, Cattle Husbandry Expert, S.A. Agrer N.V. Consultants under TACIS project A&F KYR 9301 for the assistance for improvement of private livestock sector, Osh, Kyrgyzstan

Orusbaev, Bolotbek, Private Farmer, Kotchkor Rayon, Ysyk-Kul Oblast, Kyrgyzstan.

Prior, Daniel Independent scholar and author.

Appendix C.

GLOSSARY OF TERMS

Akim- the chief regional administrator at the oblast and rayon level, somewhat analogous to a governor but appointed by the President rather than elected.

Aksakal - A native elder, literally "white beard"

Adat - Moslem customary law

Aul - A nomadic patriarchal family comprising of about 1,000 people. Equivalent to a village.

Batrak - Agricultural laborer, usually employed by a kulak for payment in kind.

Bii - A judge among Kyrgyz people deciding cases on the basis of the adat.

Brigade - Organized group of between thirty and one hundred workers.

Centner - 100 kilograms or 220.4 pounds. The same as quintal.

Chernozem - Grassland soil with a dark humic horizon, from 25 centimeters to 2 meters thick. Usually neutral and considered to be the best agricultural soil.

Dacha - Holiday house, usually in the country or at a resort. For officials it usually means a special, state-owned villa, given either for a certain period or indefinitely as a property of a family.

Desyatina - Unit of area, 2.7 acres.

Gosplan - State Planning Committee.

Hectare (ha) - A unit of land measure equivalent to 2.47 acres.

Imam - Prior or head of a mosque

Khutor - Fully enclosed farm. Holding of a household outside the commune where land and house were consolidated on one piece of land.

Kishlak - A settled native village, corresponding to a native aul.

Kolkhoz - Collective farm, formed on the basis of common means of production and collective labor; an agrarian producers' cooperative which is obliged to make deliveries to the state at prices fixed by the state. Each member receives advance payments, checked later, as a share of the net income commensurate with the share of "labor days" he contributes to collective operations. Members also have private plots (up to 0.5 hectares) around their family homes. (Plural: Kolkhozy)

Kolkhoznik - member of a collective farm.

Appendix C.

GLOSSARY OF TERMS

Akim- the chief regional administrator at the oblast and rayon level, somewhat analogous to a governor but appointed by the President rather than elected.

Aksakal - A native elder, literally "white beard"

Adat - Moslem customary law

Aul - A nomadic patriarchal family comprising of about 1,000 people. Equivalent to a village.

Batrak - Agricultural laborer, usually employed by a kulak for payment in kind.

Bii - A judge among Kyrgyz people deciding cases on the basis of the adat.

Brigade - Organized group of between thirty and one hundred workers.

Centner - 100 kilograms or 220.4 pounds. The same as quintal.

Chernozem - Grassland soil with a dark humic horizon, from 25 centimeters to 2 meters thick. Usually neutral and considered to be the best agricultural soil.

Dacha - Holiday house, usually in the country or at a resort. For officials it usually means a special, state-owned villa, given either for a certain period or indefinitely as a property of a family.

Desyatina - Unit of area, 2.7 acres.

Gosplan - State Planning Committee.

Hectare (ha) - A unit of land measure equivalent to 2.47 acres.

Imam - Prior or head of a mosque

Khutor - Fully enclosed farm. Holding of a household outside the commune where land and house were consolidated on one piece of land.

Kishlak - A settled native village, corresponding to a native aul.

Kolkhoz - Collective farm, formed on the basis of common means of production and collective labor; an agrarian producers' cooperative which is obliged to make deliveries to the state at prices fixed by the state. Each member receives advance payments, checked later, as a share of the net income commensurate with the share of "labor days" he contributes to collective operations. Members also have private plots (up to 0.5 hectares) around their family homes. (Plural: Kolkhozy)

Kolkhoznik - member of a collective farm.

Kulak - A Russian word meaning, "fist." Before 1917 it was used for avaricious merchants or for peasants who had gained a hold over their fellows, for example, village usurers. After 1917 it was used to specify class differentiation in the countryside. The kulak was a well-to-do peasant, who rented land from others and produced on a relatively large scale for the market. The middle peasant (serednyak) had average-size holdings, mostly worked by family labor, and sold some surplus on the market. The bednyak (poor peasant) did not have enough land to feed his family and usually had to borrow or hire himself out. During collectivization the term kulak became a term of abuse for anyone refusing to join the collective farms.

MTS - Machine Tractor Station, a depot which serviced several collective farms with machines, drivers, and mechanics for many works (ploughing, sowing, harvesting, and so on).

Nadel - An allotment of arable land under any form of land holding

New Economic Policy, NEP - Introduced by Lenin in 1921 in order to alleviate the heavy burden imposed by Civil War and the system of War Communism. It permitted private enterprise and was expected to last many years. It was terminated by Stalin at the end of the 1920s and replaced by collectivization and the five-year plans.

Oblast - A major administrative subdivision of a Russian province or Soviet republic, comparable to a province or state.

Obshcina - Commune. Used both to denote the particular form of land holding, intermingled partitioned strip farming, as well as the general village community, which held the land in common.

Otrub - Farm with only fields enclosed. Holding of a household outside the commune where the land was consolidated in one place, but apart from the house.

Pomeshchik - From the Russian word pomest'ye ("estate"). A member of the gentry who owned land and usually lived on his rural estate.

Pud - Old Russian measure of weight, equivalent to 16.38 kilograms.

Raion or Rayon - Administrative subdivision of an oblast' or of a city.

Sel'skii Soviet or Sel'sovet - Rural soviet, the lowest level of local administration in the countryside, usually covering more than one village.

Soviet - The Russian word for "council," the basic governmental unit of the Soviet system.

State farm or Sovkhoz - A state agricultural enterprise. Sovkhoz workers receive their wages in cash, whereas kolkhozniki are rewarded partly with money and partly with agricultural produce.

Tonne, a metric ton - 1,000 kilograms, or 2,200 pounds.

Trudoden - Workday unit, used to evaluate the work done by farmers. Different types of work have different trudoden values, unrelated to the number of working hours.

Uzed - A subdivision of a gubernia or oblast, similar to a county and headed by a Commandant.

Versta - A unit of distance, 1.1 kilometers.

Volost - A subdivision of an Uzed, comprising several Kishlaks, auls or Russian peasant villages, governed locally.

Union republics - The Soviet Union was made up of fifteen republics which were called Union republics (or constituent or national republics), where there were large and distinct national minorities, Union republics may be subdivided into autonomous republics and autonomous regions.

Zemel'noye Obshchestvo - *Land society. The term used by the 1922 Land Code of the RSFSR* to include land-users of all kinds, including communal, non-redistributable, and collective. In practice the term became equated in most soviet discussion with the commune. Some Soviet commentators suggested that the Soviet land society differed from the pre-Revolutionary commune, but in practice there were few differences.

Zemstvo - An elective local administrative assembly introduced in many parts of Russia after 1864.

Zveno - A small group of agricultural workers, a subdivision of a brigade.

Appendix D.

RUSSIAN LANGUAGE STATISTICAL AND LITERARY SOURCES

Statistics

Union of Soviet Socialist Republics v *Narodnoe khozuiAaistvo Kirgizskovoi 1960 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR Frunze 1963)

Union of Soviet Socialist Republics v *Narodnoe khozuiAaistvo Kirgizskovoi 1961 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR Frunze 1963)

Union of Soviet Socialist Republics v *Narodnoe khozuiAaistvo Kirgizskovoi 1963 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR Frunze 1963)

Union of Soviet Socialist Republics v *Narodnoe khozuiAaistvo Kirgizskovoi 1964 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR Frunze 1963)

Union of Soviet Socialist Republics v *Narodnoe khozuiAaistvo Kirgizskovoi 1967 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR Frunze 1968)

Union of Soviet Socialist Republics v *Narodnoe khozuiAaistvo Kirgizskovoi 1973 goda* (Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR Frunze 1975.)

Union of Soviet Socialist Republics v *Narodnoe khozuiAaistvo Kirgizskovoi 1987-88 goda* Tsentral'nyy Statistcheskoye Upravleniye Kirghiz SSR Frunze 1988)

Natskomstat Kyrgyzskoy Respubliki (Kyrgyz State Committee on Statistics) *Sotialbno Econmiseskoe Polozenie Kyrgyzskoi Respubliki* (Bishkek 1996)

Natskomstat Kyrgyzskoy Respubliki *Statisticheskiy yezhegodnik Kyrgyzskoy Respubliki 1994 (The Statistical Yearbook of the Kyrgyz Republic in 1994)* (Bishkek: Natskomstat Kyrgyzskoy Respubliki 1995)

Natskomstat Kyrgyzskoy Respubliki *Demograticheskiy yezhegodnik Kyrgyzskoy Respubliki 1995 (The Demographic Yearbook of the Kyrgyz Republic in 1995)* (Bishkek: Natskomstat Kyrgyzskoy Respubliki 1996)

Kyrgyz State Division of Land Management (formerly Kyrgyzprozem) *Gosodarstvenney proehey yestetot po zemleostroystvo "Kyrgyzprozem". Nalichye raspredelenye Zemelbnogo Fokda Kyrgyzki Respoblikí* (Handbook of Land use) Bishkek 1996.

World Bank. *Statistical handbook 1994. States of the former USSR.* Washington: The World Bank 1994.

U.S. Dept. of State Dispatches *Fact sheets; Central Asian Republics*, v5, n19, (May 9 1994) pp. 282-297.

Censuses

Tsentral'nyy Statistcheskiy Komitet Ministerstva Vnutrennikh *Pervaia vseobshchaia naseleniia Rossiiskoi Impererii*, 1897 89 vols.

Union of Soviet Socialist Republics *Vsesoiuznaia perepis naseleniia 1926 goda* (Tsentral'nyy Statistcheskoye Upravleniye SSSR 56 vols.1926)

Union of Soviet Socialist Republics *Tsentral'noe upravlenie narodnok hoziaistvennogo ucheta-Vsesoiuznaia perepis' naseleniia 1939 goda* (Tsentral'nyy Statistcheskoye Upravleniye 1939)

Union of Soviet Socialist Republics Itogi *Vsesoiuznaia perepis naseleniia 1959 goda Kirgizskaia SSR* (Tsentral'nyy Statistcheskoye Upravleniye pri Sovete Ministrov SSR vol. 12 1959).

Union of Soviet Socialist Republics *Itogi Vsesoiuznaia perepis naseleniia 1970 goda* (Tsentral'nyy Statistcheskoye Upravleniye pri Sovete Ministrov SSR vols. 1-7 1970)

Union of Soviet Socialist Republics *Itogi Vsesoiuznaia perepis naseleniia 1979 goda sbornik statei* (Tsentral'nyy Statistcheskoye Upravleniye pri Sovete Ministrov SSR 1984) pp.230 (also pub. by Eastview Press in microfiche 1989)

Union of Soviet Socialist Republics *Itogi Vsesoiuznaia perepis naseleniia 1989 goda* (Tsentral'nyy Statistcheskoye Upravleniye pri Sovete Ministrov SSR 1989) Published in English by Eastview Press in CD Rom 1993)

Russian Language Literature on Kyrgyzstan

There is a wealth of Russian language literature on Kyrgyzstan, much of which is now becoming available to western scholars. Following is a brief summary of the major bibliographies, partially annotated, that may be used as sources for additional information on Kyrgyzstan.

Bibliographies and Abstracts

The best and initial starting point for any literature on Russia or the Former Soviet Union is:

Harris, Chauncy, D. *Guide to Geographical bibliographies and reference works in Russian or on the Soviet Union* (University of Chicago Research Paper No.165. Chicago: University of Chicago Press 1975).

> Though now somewhat dated (covers the years up to 1975), the 2660 works cited, broken down topically and regionally is the starting point for all serious research on this area.

Referativnyi zhurnal: geografiia (Journal of abstracts: geography), 1954 - Moscow, Began publication in 1956 Akademiia nauk SSSR, Institut nauchnoi informatsii. Monthly. Up to 1982 For<1957-1958> have added title pages. Bound issues called Svodnyl tom

> A massive bibliographical guide to the world literature on geography, but particularly valuable for its thorough coverage of books, articles, brochures, and other written material on the geography of the Soviet Union. Abstracts provide the essential information from each of the works listed.

U. S. Library of Congress. Reference Department. *Soviet geography; a bibliography.* Edited by Nicholas R. Rodionoff. Washington, 1951. 2 v.

Extensive bibliography of Soviet geography up to 1950 covering geography as a science, general geography, exploration, historical geography, physical geography, economic geography, political and military geography, atlases and cartography, bibliography and bio-bibliography, and the individual regions of the Soviet Union in 4,421 entries. Holdings and call numbers of the Library of Congress and known holdings of other American libraries are indicated. Indexes for authors and subjects.

Novichenko, E. I. *Bibliografiia bibliografii o Kirgizii, 1852-1967. Annotirovannyi ukazatel' literatury* (Bibliography of bibliographies on Kirgizia, 1852-1967. Annotated guide to the literature). Frunze, Izdatel'stvo "Kirgyzstar," 1969. 190 p.

Periodicals

Kartografischekaia letopis' (Cartographic annals). V. 1 - 1931 - Moscow, Vsesoiuznaia knizhnaia palata. Annual.

Geograficheskoe obshchestvo SSSR. Izvestiia (News). V. 1- 1865 - Leningrad. Bimonthly.

The oldest of the Russian geographical periodicals and the one with widest general interest. Supplementary table of contents in English. Articles, notes, reviews, chronicle. The volume pertaining to Kyrgyzstan is:

Razvitie geograficheskikh nauk v Kirgizii: b [Sb. Stateaei] / c Akademieiia nauk Kirgizkoaei SSR, *Kirgizskoe geograficheskoe obshchestvo*, Otdel geografii Instituta geologii Kirgizkoaei SSR; [ed. S.U. Umurzakov]. Frunze : Izd-vo "Ilim," c 1980. 165 p.ill.; c 22 cm. Includes bibliographies.

Akademiia nauk SSSR. *Izvestiia. Seriia geograficheskaia* (News. Geographical series). 1951 - Moscow. Bimonthly.

A substantial scientific journal. The organ of the Institute of Geography of the Academy of Sciences of the USSR. Supplementary English table of contents. Articles, notes, discussions, reviews, chronicle.

Atlases

Russia (1923 - U.S.S.R.) *Glavnoe upravlenie geodezii I kartografii. Atlas sel'skogo khoziaistva SSSR* (Atlas of agriculture in the USSR). Edited by A. I. Tulupnikov, M. I. Nikishov, and others. Moscow, 1960. 306p

Russia (1923 - U.S.R.R.) Glavnoe upravlenie geodezii I kartografii. Atlas istorii geograficheskikh otkrytii I issledovanii (Atlas of the history of geographical discoveries and exploration). Moscow, 1959. 108 p. (Glavnoe upravlenie geodezii I kartografii MVD SSSR)

Shows the routes of famous explorers in Russia, the Soviet Union, and other countries. Index of place names.

Preobrazhenskii, A. I. Russkie ekonomicheskie karty I atlasy (Russian economic maps and atlases). Moscow, Geografgiz, 1953. 326 p. ilus., map.Bibliography: p. 321 ff.

Chronological list of the more important economic maps and atlases published in pre-Revolutionary Russia and the Soviet Union pages 266-320. A history with many illustrations of Russian and Soviet economic maps and atlases.

General Literature on Kyrgyzstan and other references in text.

Abramzon,S.M. V Kirgizshiki kolkhozakh Tyan-shanya (In the Kyrgyz collective farms of the Tien Shan) *Sovetskaya Etnografiya* N.4 55-74 1949

_____ Formy rodoplemennoy organizatsii u kochevnikov sredny Azii. (Forms of Kinship organization among the nomads of Central Asia.) *Trudy Instituta Etnografii* v.14.132-156,1951

_____ Etnicheskiy sostav kirgizskogo naseleniya servernoy Kirgizii (Ethnic composition of the Kirgiz population of Northern Kirgizia) *Trudi Kirgizskoy ekspeditsii* v.4:3-137

Aitbaev,M.T. *Historiko-Kulturnbe svrzh Kyrghiskogo h russkogo* .(Historic-Cultural Connections between the Kyrgyz and Russian People (based on data from the Issyk-Kul oblast of the Kyrgyz SSR))Narodov Academhr Nauk Khrghzskoi SSR Frunze 1957

Bgozhoev, Bektur Orozgozhoevich. *Priroda vysoksgornykb pastbishch vnutrennego Man'Shania* [Ak-Say and Arpa]. Frunze, "Ilim," 1968, 147 p. Bibliography, p. 139-146.

Bushman V.V. *Prognozirovanie razviliia I razmeschcheniia sel'skom khoziaistve Kirgizskoi* Frunze, Ilim 1982

Kalugina, Z.I. and T.P. **Antonova** *Lidinoe podsobnoe khoziaistvo sel'skogo naseleniia: problemy I perspektivy* Novosibirsk.Nauka 1984

Mamadzhanova, ed et al. *Sovetskii Soiuz: Geograficheskos opisanie*. [The Soviet Union: A Geographical Description] Moscow: 1968. 239p

Otorvaev K.O and S. N. **Biazantsev** eds. *Sovetskii Soiuz: Geograficheskos opisanie*, [The Soviet Union: A Geographical Description.-Kirgiziia.] Moscow. Mysl' 1970. 288p.

Umurzakov, Sadybakas Umirzakovich, *Literature* (Literature). In the book: *Priroda Kirgizii: kratkaie fiz'ko-geograficheskaia kharakteristika* (Natural conditions of Kirgizia: a short physical-geographical characterization). M. N. Bol'shakov, I. V. Vykhodtsev, E. V. Nikitina, and others. Frurze, Krigizgosizdat. 1962. 298 p. Bibliography, p. 279-297 (Geografischeskos Otshctestvo SSSP. Kirgizski Filial).

Ziuzin, D.I. "Prichiny nizkoi mobil'nosti korenogo naseleniia respublik sredni Azii" *Sotsiolog icheskie Issiedovaniia* 1983 N.1 pp. 111-112.

Literature-Exploration

Severtzov, H.A. *Puteshestver po turkestanskomu krau Tien-Shan* St.Petersburg.1873.

Baranskii, Nikolai N., et al, eds. Otechestvennye fiziko-geografy I puteshestvenniki (Native physical geographers and explorers). Moscow, Uchpedgiz, 1959. 782 p. ports, maps, index.

Berg, Lev S. Ocherki po istorii russkikh geograficheskikh otkrytii (Essays on the history of Russian geographical discoveries). 2d ed. Moscow, Izd-vo Akademii nauk SSSR, 1949. 465 p. illus., maps, index, bibliographical footnotes. (Akademiia nauk SSSR. Seriia Itogi I problemy sovremennoi nauki)

Berg is the principal author of literature relating to exploration and discovery in Central Asia.

Semenov-Tian'-Shanskii, Veniamin P., ed. Rossiia; polnoe geograficheskoe opsianie nashego otechestva. Nastol'naia I dorozhnaia kniga dlia russkikh liudei (Russia; a full geographic description of our native land. A reference book for the Russian people for the office and for travel). St. Petersburg, Izdanie A. F. Devriena, 1899-1913. 11 v. illus., maps, indexes. v. 18. Kirgizskii krai (Kirgiz district).

Akademiia nauk SSSR *Kirgizskii Filial Frunze* Nauka v. Kirgizii za 20 let, 1926-1946. Pod red. K.I. Skriabina. Frunze, 1946. 207 p.

Tsentral'noe Polnitel'nye Komitet *Itogi zemel'no-vodnoi reformy v iuzhnykh kantonakh Kirgizii.* [Frunze], Izd. Tsentral 'n. isp. Kom-ta KASSR, [1928]. 86p.

Studies on the Physical Geography, including the hydrology of Lake Issyk-Kul.

Keizer, N. A. *Materialy dlia istorii, morfologii I gidrologii oz. Issyk-Kul'.* Tashkent, Izd. Sredne-Aziaitskogo Gosudarstvennogo universiteta, 1928. 43 p.

Losev, Davyd Semenovich. *Prirodnya usloviia I prirodnye resursy Kirgizii, 1946-1955: Ukazatel' literatury* (Natural conditions and natural resources of Kirgizia: guide to literature). K. O. Otorbaev, ed. Frunze, 1963. 275 p. (Gosudarstvennaia Respublikanskaia Biblioteka Zirgizskoi SSR im. N. G. Chernyshevskogo. Bibliografiia Kirgizii v 4-kh tomakh. Tom 3, vypusk 3).

Blagoobrazov, Vladimir Alekseevich *Tian'-Shan'skaia fiziko-geograficheskaia stantsiis: bibliograficheskii ukazatel'* (Tyan'-Shan' Physical-Geographic Station: a bibliographic guide). Frunze, "Ilim," 1965. 225 p.

Geograficheskiy entsiklopedicheskiy slovar': Geograficheskiy nazvaniye (Geographic Encyclopedic Dictionary: Geographic names) Moscow, Sovietskaya entsiklopediya 1989, pp. 196-197

Ratkovitch, D.Ya. "The water balance and level regime of Issyk-Kul" *Vodnyye resursey,* 1977, No.5, pp.20-33.

Znamenskiy, V.A. " So as not to make Issyk-Kul shallower" *Celovek I stikhiya* 1982 (Man and the elements 1982), Leningrad: Gidrometeoizdat, 1981, pp.95-97

Appendix E.

OFFICIAL KYRGYZ GOVERNMENT DECREES AND RESOLUTIONS PERTAINING TO LAND REFORM, 1991-1997 AND THEIR IMPACT UPON GOVERNANCE AND LAND ALLOCATION

Presidential Decree No. VII-369 "On Urgent Measures to Secure the Realization of the Laws of the Kyrgyz Republic Regulating Land Relations and Other Relations in Agriculture" (November 10, 1991).

> The initial decree of independent Kyrgyzstan that made unprofitable collectives (<15% profit per annum) private entities with redistribution to private owners. Farms chosen by state property committee and state, oblast and rayon bureaucrats. This decree also permitted private farmers to break off from (profitable) collectives. Finally the decree set up as a result of land redistribution a National Land fund to support "the Kyrgyz way-of-life".

Government Resolution "On the Peculiarities of the Destatization and Privatization of State Farms and Other State (Municipal) Agricultural Enterprises in the Kyrgyz Republic" (January 13, 1992).

> Regulations to accompany the preceding decree.

Government Resolution "On the Rural Committees on Land Reform in the Republic of Kyrgyzstan" (January 13, 1992)

> Established rural committees, which were farm level committees given authority over the intra-farm reorganization. Rural committees are essentially the executive branch of the village. They are also referred to as rural soviets. The rural council, which was formerly called the rural soviet and is sometimes called the village council, is the legislative body at the village farm level. Often, in practice, the rural council and the rural committee are made up of the same people and the terms are used interchangeably. In 1996 the rural committee's name was changed to "village government" (*Ailokmotu*), and this term will be used in this report to distinguish the village government from the farm reorganization committees, which are also called rural committees.

Presidential Decree "On the National Land Fund of the Republic of Kyrgyzstan," (March 10, 1992)

> Provided details as to the manner of the National Land Funds (NLF) formation, distribution, and use.

Presidential Decree "On Measures for Further Implementation of the Land and Agrarian Reform in the Republic of Kyrgyzstan" (December 10, 1992).

This decree removed the requirement for NLF to be for Kyrgyz and established the concept of a "land share" by which each worker or member received the right to land. Rayon administrators were given responsibility for the implementation. As a result of the following the next decree, they were required to do so in conjunction with rural committees on land reform.

Constitution of the Kyrgyz Republic adopted on May 5, 1993.

It specifically states (Article 4) that all land is the property of the state and cannot be purchased or sold. However farmers can lease for up to 49 years (later extended to 99 years). And rights can be purchased and sold. The effect has been to retard the establishment of a land market and hence the ability to obtain financing by use of land as collateral.

Presidential Decree No. 23 "On Measures to Enhance (Deepen) Land and Agrarian Reform in the Kyrgyz Republic" (February 22, 1994).

This decree now guaranteed (rather than recommended) the rights of workers to receive the land share and reconfirmed the rights to transfer them.

Government Resolution No. 345 "On the National Land Fund" (May 19, 1994).

Further clarification of the NLF, and in particular the use of the land. The resolution identified 3 options: (i) leasehold to specialized categories (ii) land shares to collective workers who may not otherwise have received land and (iii) leasehold to agricultural commodity producers. As RDI indicates it did not indicate quality of land, use terms of land or who was to receive the land.

Government Regulation "On Rural Committees on Land and Agrarian Reform" Adopted pursuant to Government Resolution No. 148 (March 25, 1994).

A regulation was passed in March 1994 in an effort to broaden and define the functions of the village governments. The regulation gave the village government a wide range of power over implementation of the agrarian reform and general development in rural areas. It permitted appointment of the head of a collective or state farm as the head of the village government that operates on the territory of that farm. The village government was generally responsible for enforcing laws and regulations regarding rights to land, land reform, agrarian reform, rational land use, formation and registration of enterprises, land and water relations among farmers, economic disputes among farmers, and the granting of land shares and property shares. In addition, with the consent of the *raion* administration, the

Ministry of Agriculture could delegate to the village governments the right to lease out National Land Fund land.

Government Regulation "On Reorganization of Agricultural Enterprises", Adopted by Resolution No. 632 (August 22, 1994).

Addressed the issue of who would allocate land with Rayon consent, the Ministry of Agriculture could delegate to the village government the right to lease out NLF land.

In August 1994, the Government promulgated regulations that provided rules for the process of determining land share use rights. All land within collective and state farms (with the exception of NLF land, village land, pastures and other well defined types of non-arable land) was required to be allocated as land shares. Such land shares were to be distributed free of charge to farm workers, pensioners, invalids, and specified social sphere workers. Land share certificates were to be distributed, listing the names of each recipient's family members and providing an additional share for each family member. Certificates are issued to the head of the household and must be registered to be legally enforceable.

These regulations also provided that commodity producing agricultural enterprises must consist of at least 10 hectares of plowed land in intensive cultivation zones, 15 hectare in average zones, and 20 hectares in the mountains. Although these minimums are set to encourage development of farms of sufficient size to produce for the market, to encourage retention of present irrigation systems and to discourage breakdown of crop rotation patterns, they made it difficult, if not impossible to establish a single family farm.

Annex to Decision of the Board No. 3, Government Resolution "On Committee for Implementation of Land Reform and for Reorganization of Agricultural Enterprises" (January 23, 1995).

The government had now realized that village governments were dominated by collective or state farm leaders who might impede the reform process, the government adopted a regulation in January 1995 creating a "committee for implementation of land reform and reorganization of agricultural enterprises" on each reorganizing farm enterprise. These committees were set up to be more broadly representative of those involved in land reform process and rare more narrowly focused than the village government. Each committee is charged with inventorying the assets of enterprises to be reorganized, calculating land and property shares of members, developing a plan for reorganizing the enterprise, and then implementing the plan. The committees must be composed of no more than 15 members, including the head of the village government, and representatives of the Ministry of Agriculture, the *raion* administration, the *oblast* and *raion* Centers for Land and Agrarian Reform, financial bodies who have a state in the enterprise and elected representatives of the reorganizing enterprise.

Government Regulation "On the Procedure for Determining Citizens' Land Shares and for Issuance of Certificates Containing Land Share Use Right," Adopted by Resolution No. 632 (August 22, 1994),

The ruling that, with the consent of the Rayon administration, the Ministry of Agriculture could nominate the village government the right to lease out the NLF land.

Decision No. 7, "On the National Land Fund" (February 8, 1995).

NLF land could not be divided into land shares unless the raion administration, with permission from the Ministry of Agriculture, made such a proposal for the purpose of: (a) raising yields, making an enterprise profitable, increasing production of beef and milk, increasing employment; or (b) allocating shares to workers in specified fields of the social sphere. Other land in the fund could be temporarily leased to peasant farms with permission from the village government.

Presidential Decree "On Measures for Further Development and State Support of Land and Agrarian Reform in the Kyrgyz Republic" (November 3, 1995).

In November 1995, this presidential decree significantly furthered the rights on land shareowners. Existing 49-year use rights to agricultural land were extended to 99 years. Heads of *oblast* and *raion* governments are instructed to complete the issuance of land share certificates by December 31, 1995. The decree abolished the maximum size of plots that one family may use, and reduced the minimum size of land plots to 5 hectares in all cultivation zones (and to 1 hectare for rural and suburban vegetable operations).

In addition, the November 1995 decree abolished the National Land Fund and transferred the land remaining in the fund to the new Land Redistribution Fund (LRF) to be run by the Ministry of Agriculture. The decree provided that land parcels from the fund are to be used for expansion of the rural settlements, creation of experimental agricultural facilities, auctioned as 99-year use right for organizations of "peasant communities," and other purposes to be decided by the government.

This decree had the effect of significantly accelerating the pace of reform and is believed to be the most significant measure to date to stimulate reform.

Government Regulation "On Categories of Subjects of Agricultural Enterprises in the Kyrgyz Republic" (adopted by Government Resolution No. 158 "On Adoption of the Regulation on Categories of Subjects of Agricultural Enterprise in the Kyrgyz Republic" (April 12, 1996)).

Focused on whole farm break-up and called for the reorganization of all state and collective farms by 1996 into smaller management units created from land and property shares. The program established committees to inventory the assets of

farms to be reorganized, calculate land and property shares of members, develop a plan for reorganizing the farm, and then implement the plan.

The program described classifications of agricultural producers into which enterprises could reorganize according to size and mode of production. A later government regulation defined seven new enterprise categories. These categories were intended to eliminate some of the confusion caused by the tendancy of some collective-type enterprises to adopt names suggesting that they are associations of independent peasant farms. The categories are as follows:

1. personal household enterprise (household plot cultivated by family members);
2. farm enterprise (farm operated by one family on at least 5 hectares of irrigated land or at least 1 hectare of suburban vegetable land);
3. peasant enterprise (two or more families cultivating 5 to 100 hectares of irrigated land or 1 to 100 hectares of suburban vegetable land);
4. collective peasant enterprise (cultivating more than 150 hectares of irrigated land);
5. joint stock company (enterprise capitalized with shareholders' non-land property which uses shareholders' land shares);
6. state enterprise (enterprise using state land and performing a state program); and
7. Agricultural cooperative (composed of independent farm enterprise or peasant enterprises.

Presidential Decree No. 327 "On Measures Aimed at Introduction of Market of Land Use Rights and on Establishment of the Market Credit System in Agriculture" (November 25, 1996).

One year later (November 1996), Presidential Decree No. 327 called for (1) registration of land use rights transactions, (2) sale (tender and auctions) of use rights to 50 percent of land of the Land Redistribution Fund, and (3) one-year lease agreements for the remaining land in the Land Redistribution Fund. Procedures for the sale of this land were promulgated by the Government of the Kyrgyz Republic in January 1988.

Presidential Decree No. 104 "On the Land Management and Land Resources State Agency Under the Government" (March 20, 1996)

Decree to create this new agency and in the process transferred Kyrgyzgeprozem duties to this new agency. It was an attempt to push forward land reform by creating one central government agency for this purpose. It included surveyors and cadastral specialists to permit land registration and the creation of actual land registration offices and officers.

Temporary Government Resolution No. 480 "On Lease to Land Users of Land Plots from the Land Redistribution Fund of Agricultural Land Belonging to the Ministry of Agriculture and Water Resources of the Kyrgyz Republic" (August 20, 1997).

> The major reform of November 3 1995 created the land redistribution fund, which was that land remaining after the abolition of the National Land fund. This decree further clarified the leasing out of this land

Government Resolution No. 172 "On Implementation of State Registration of Land Use Rights" (April 2, 1997).

> Decree to again provide for registration of land parcels to be made by january 1,1997.

Government Resolution No. 14 "On Measures Aimed at Introduction of the Market of Land Use Rights" (January 9, 1998) and accompanying Regulations "On Republican and Rayon Executive Commissions on Sale of Rights to Use Land Plots of the Agricultural Land Redistribution Fund Under the Ministry of Agriculture and Water of the Kyrgyz Republic," and "Temporary Regulations on Auction Sales of Rights to Use Land Plots of the Agricultural Land Redistribution Fund Under the Ministry of Agriculture and Water of the Kyrgyz Republic" (January 9, 1998).

Government Resolution No. 158 "On Categories of Subjects of Agricultural Enterprises in the Kyrgyz Republic" (adopted by Government Resolution No. 158 "On Adoption of the Regulation on Categories of Subjects of Agricultural Enterprise in the Kyrgyz Republic" (April 12, 1996)).

> The latest definition and description of types of land tenure following 5 years of reform. Two types of collective farm are recognized: (I) the "collective peasant enterprise" which are a voluntary associations of members of a former Kolkhoz or Sovkhoz. Individual shares are present but land is farmed jointly. (2) Joint stock companies which are corporate entities with assets held by shareholders (farm members). In all cases the farms in these categories are over 150 hectares and are often controlled and directed by former communist farm collective directors.

The author is indebted to the Rural Development Institute for the right to use their summary of Presidential decrees culled in large part from the report: *Land Reform and farm reorganization if the Kyrgyz Republic*. See Giovarelli (1998).

Appendix F

List of Equivalents

1	Verst	500	Sazhen	1.067	Kilometers	0.6629	Miles
1	Kilometer	1,000	Meters	.938	Versts	.621	Miles
1	Mile	5,280	Feet	1.6093	Kilometers	1.509	Versts
1	Sq. Verst	104.17	Desiatines	1.138	Sq. Kilometers	.439	Sq. Miles
1	Desiatine	2,400	Sq. Sazhens	1.0925	Hectares	2.70	Acres
1	Hectare	10,000	Sq. Meters	.914	Desiatines	2.471	Acres
1	Acre	0.370	Desiatines	.405	Hectares		
1	Pood	40	Russian Pds.	16.38	Kilograms	36.113	Pounds (Avoirdupois)
1	Ruble (1914)	2.16	Marks		2 British shillings and 1 3/8 pence		$0.515
1	Ruble (1998)						$ 5,500
1	Som (1998)						$ 0.18

Appendix G

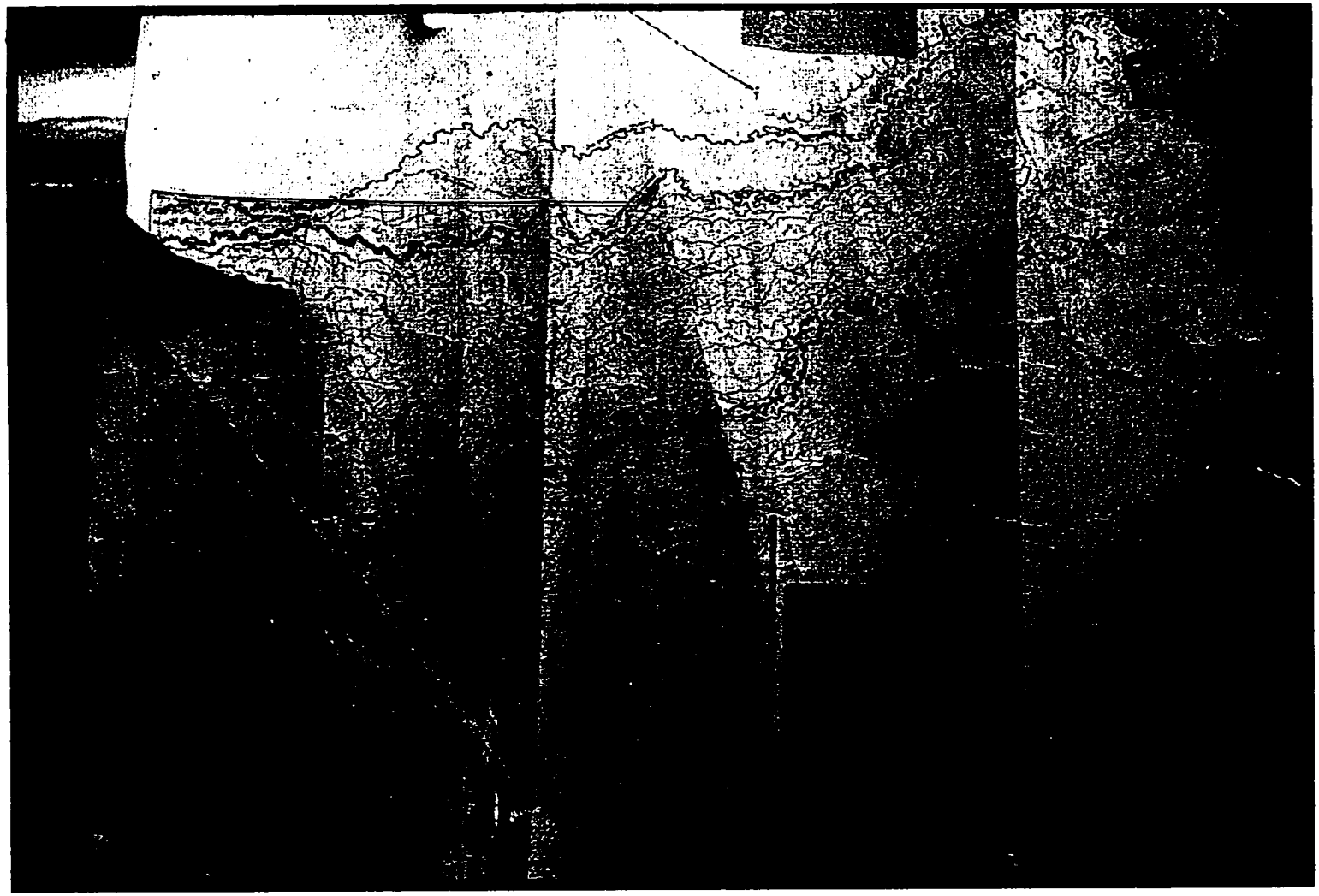
Archive Map 1. Land Clearance, Chalba region, Djeti Oguz Rayon 1868

Orientation: Top edge is due north

Scale: Linear scale shown on top of map Approximately 1:63000

Source: Kyrgyz State Archives 3-520-179

This is the earliest known map of land use and land allocation map of the Ysyk-Kul region. It shows an area of land south of Lake Issyk-Kul east of Pokrovka and west of Djeti Oguz. The southern shore of Lake Issyk-Kul can be seen in the northwest corner. It indicates that as early as 1868 land was used for sedentary agriculture as extensive field systems can be clearly seen. The fields appear to be less than a hectare in size and are generally rectangular. They straddle the intermittent watercourses possibly in order to obtain sufficient water. Thus one can conclude that some agricultural activities may already have been occurring prior to Russian settlement. In addition, the map names the major river courses and shows some small settlements though the nature of the settlements depiction, as a point would suggest these are temporary of semi-permanent settlements. In the south rudimentary roads in the form of tracks can be discerned suggesting that explorers like Svertsov would be travelling existing communication links when he passed through some five years later.



Archive Map 2. Karakol and environs 1886

Orientation: Top edge of paper due north

Scale: No scale on map. Approximately 1:15000

Source: Kyrgyz State Archives 119-2-22.

The map is as comprehensive as any in the archives. It indicates crop type. Pasture are the light green areas, arable the brown, wet-hay (Green chop) the blue, dry hay the orange and deep green the communal orchard. The more extensive pasturelands are shown on a map that is an annex to this sheet. It is not shown here). It shows Karakol well established as an urban center, with a church in the center of town, cemeteries in the south (Muslim) and northeast (Russian orthodox) and planned future expansion. Roads in the form of well-defined tracks radiate from the city and the major route, here running north, is well defined. The legend also contains the first reference to "irrigation ditch" indicating that 1886 farmers were attempting more intensive arable use.

Archive Map 3. Karakol and environs 1910

Orientation: Top edge of paper due north

Scale: No scale on map. Approximately 1:15000

Source: Kyrgyz State Archives 119-4-91.

By 1910 the settlement of Prezervalsk (Karakol) was well established with over 10 square blocks of housing. Immediately adjacent to the settlement orchards and other market gardening areas may be seen. In the surrounding countryside in comparison with the map of 1886 land clearance has progressed slowly with large areas of rough grazing and little in the way of distinct field systems. Teplokluchenka is also featured in this map. However, with the exception of the widespread addition of orchards and clearly a canalization of the surrounding watercourses the settlement has grown very little. The community of Orlinka is featured in the Northeast portion of the map. It has a church and the community has undertaken significant river works in the form of embankments to remove the threat of flooding.

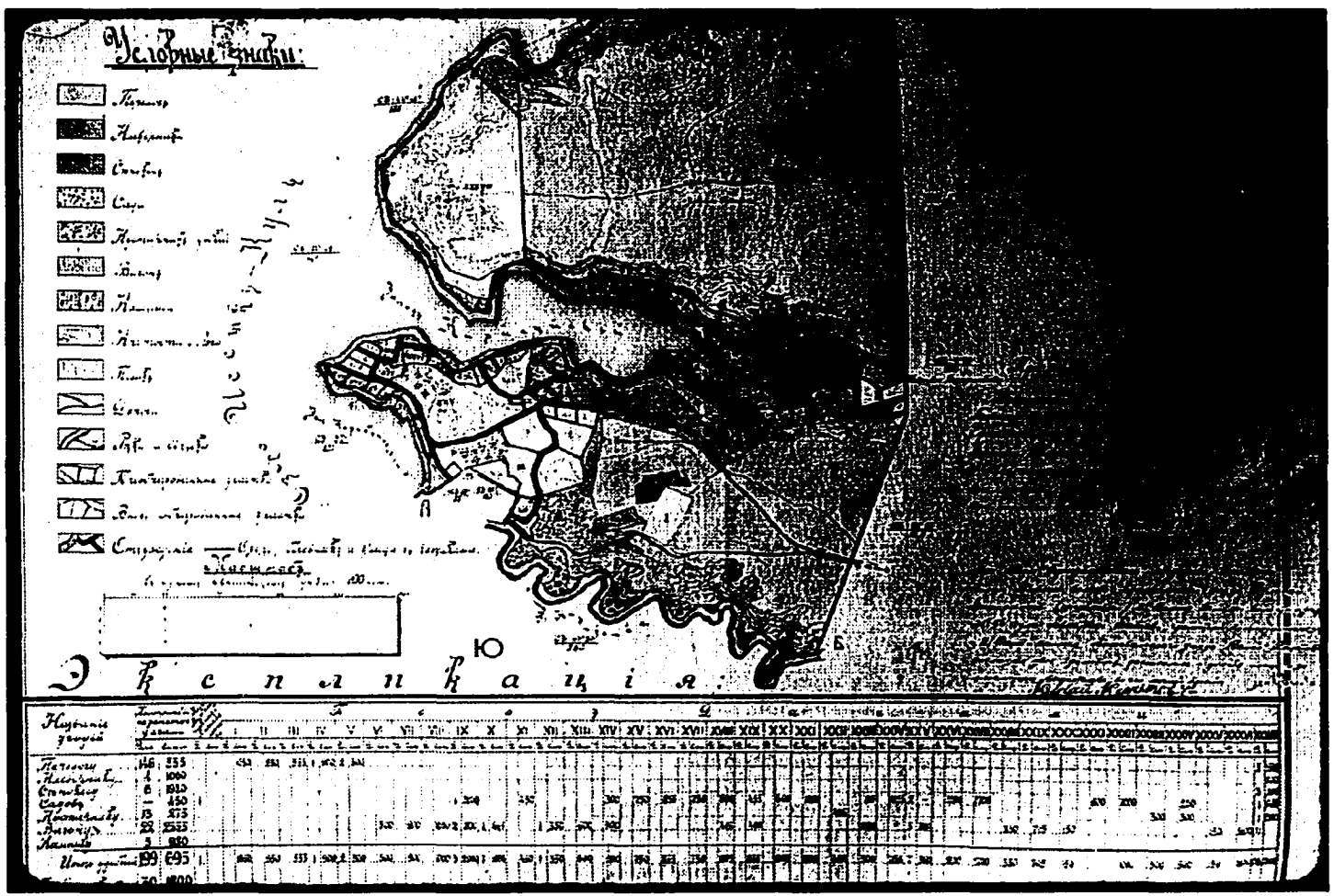
Archive Map 4. Dacha's on the shore of Issyk-Kul for Karakol residents 1912

Orientation: Top edge of paper due east.

Scale: Approximately 1: 50000

Source: Kyrgyz State Archives

The new Russian immigrants brought as much of their cultural heritage with them as possible in order to be comfortable and acclimatized. Thus following their early establishment in the city of Karakol, the more wealthy petitioned for and gained a summer residence of Dacha to which they could retire for weekends or vacations. In Ysyk-Kul the most desirable location was on the lakeshore and thus by 1912 smaller land plots had been demarcated and allotted on the peninsular some 12 miles from the city. The map shows the arterial and minor roads, individual lots and the limit of cultivation. Dachas are still present in this area having survived the Soviet period not only intact but also extending along the south shore of the embayment in the center of the plate.


Условные знаки:
Ю
Экспликация:

Archive Map 5. Town Plan - Teplokluchenka 1884.

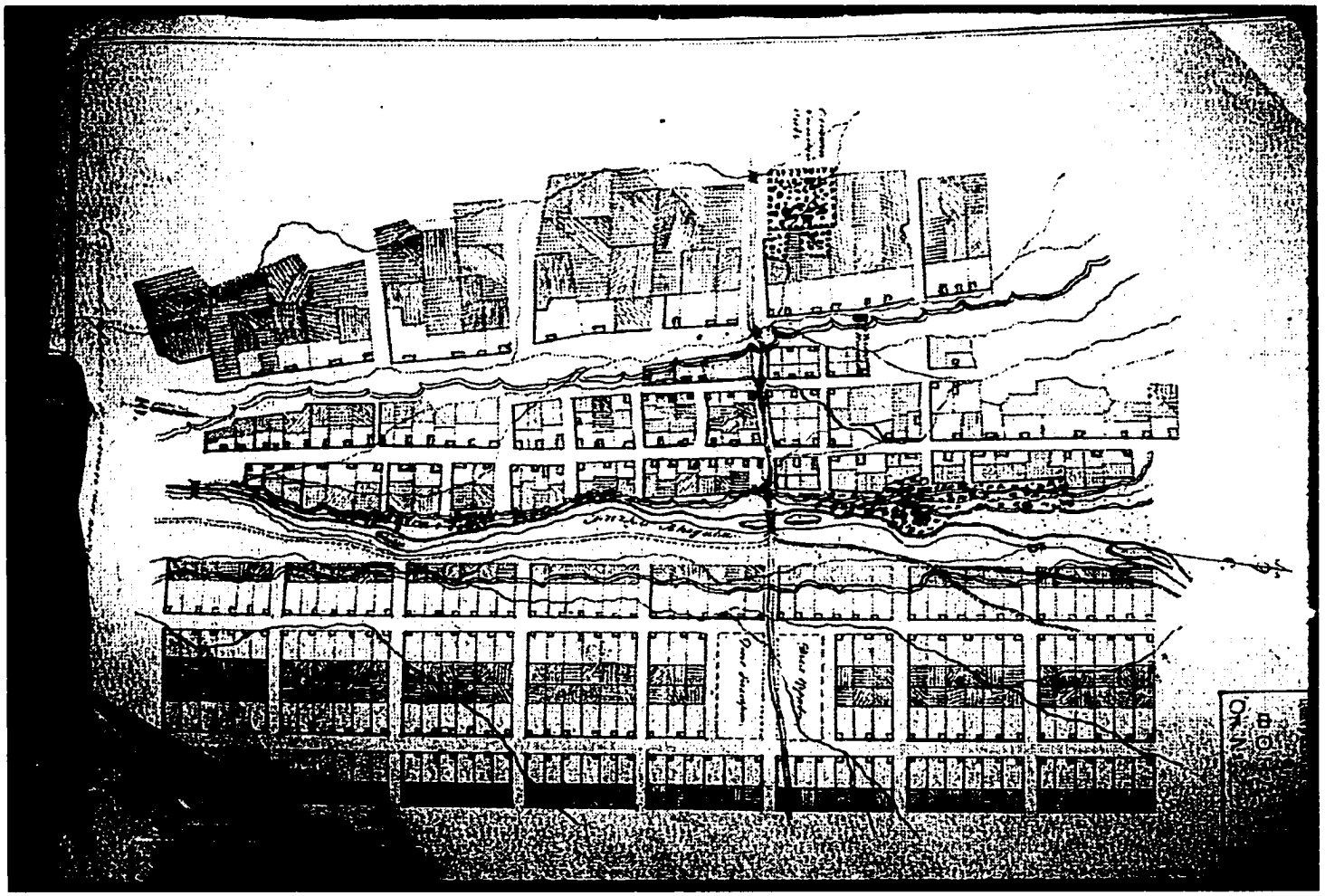
Orientation: Top of page due north

Scale: Not shown. Approximately 1: 2300

Source: Kyrgyz State Archives 119-3-020F

The classical Russian New town plan in the colonies. Teplokluchenka was the original garrison town, for the Ysyk-Kul region, established in 1864, prior to the relocation of the garrison to Karakol in 1869.The town was subsequently laid out in regular blocks at right angles to the Ak Suu river. The blocks were six houses long and two houses wide, a pattern that is standard throughout the Russian and Kyrgyz settlements of Ysyk-Kul. The lots are 60 x 20 feet and all include a private garden plot. Houses tend to be located on the corners of the lot to assist in livestock transportation into the lot.

The three communal facilities included in all communities were a church, a cemetery (not shown) and a central park.



Archive Map 6. The area around Teplokluchenka 1884.

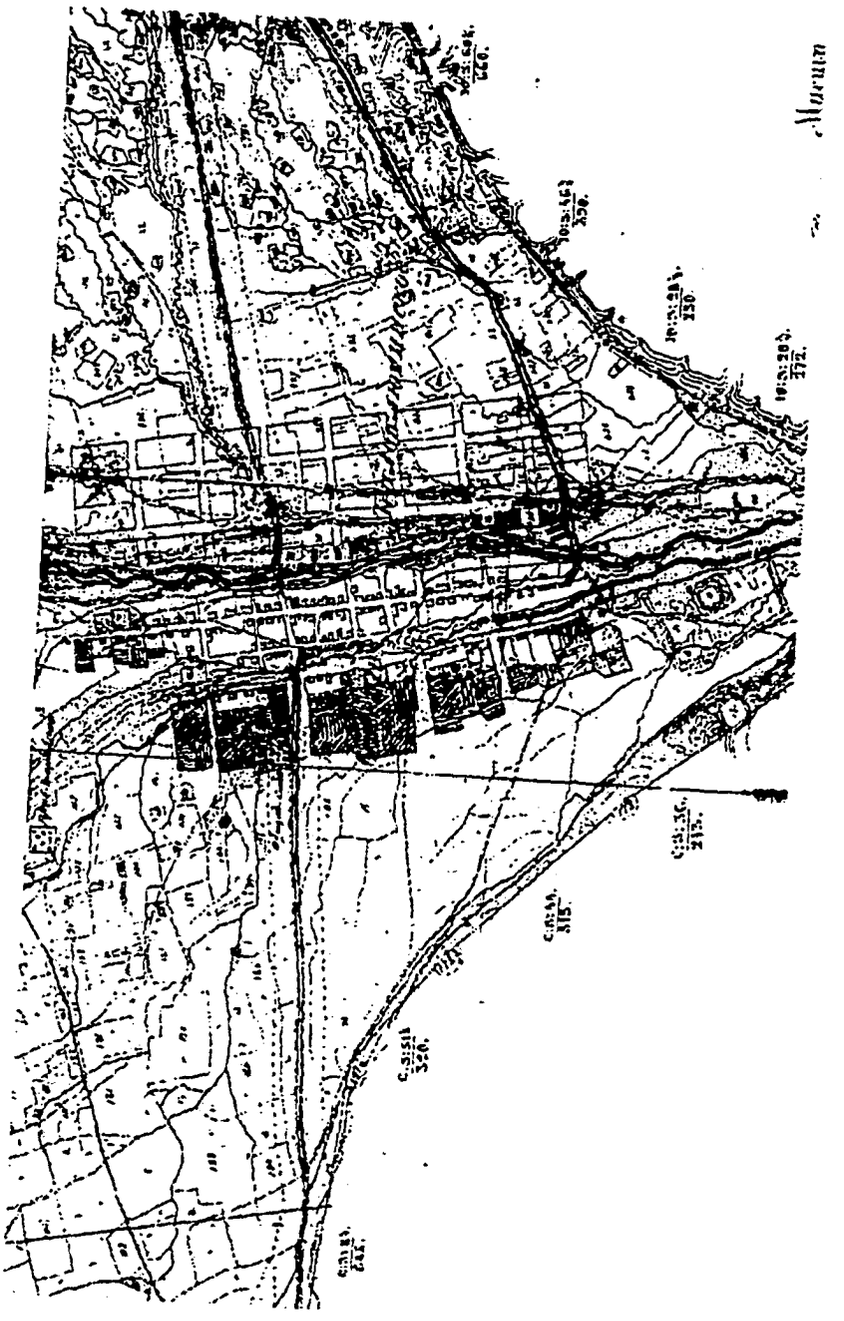
Original is Ink map

Orientation: Top of page is due east.

Scale: Approximately 1:35,000

Source: Kyrgyz State Archives 119-2-228

The map shows the linear morphology of the newly planned town sited above the Ak Suu river flood plain and the individual lots at right angles to the river. Each building has an area of private land immediately behind the house and at some distance from the town site individual plots (*nadely*) are demarcated. Future expansion areas are already plotted to the east as at this time immigration to these lands was at its height.



Archive Maps 7 a and b. Land Clearance for agriculture, Tyup (Preobraghenskoe) 1895-1905

Orientation: All maps Top edge is east.

Scales approximately. 1895 = 1:250000 1905 = 1: 60000

Source: Kyrgyz State Archives 119-2-44

The following maps are presented in sequential order to illustrate the process of land clearance in the area around Tyup. The first map is dated 1895 and indicates very little of the region under crop. The largest area of crops is along the piedmont fringe in the north, which is also the location for the existing road or trail. The bottomlands are little cultivated. Ten years later in a map of the eastern end of Issyk-Kul dated 1905 land clearance is clearly evident. In the ten years large areas to the southwest of the hamlet of Tyup are under plough (brown) while the individual fields (in red) are designated "fallow". This suggests that the traditional Russian three-field system of crop rotation (winter rye or wheat, barley or oats and fallow) was imported to Kyrgyzstan and that the use of more productive multi-rotational forms of organization using nitrogen fixating leguminous plants was still a European phenomenon. The area surrounding the field systems and the lower riverine lands are classified "hay-harvest" (blue) though differentiation of "prairie/ steppe" and "wet-hay harvest" according to the legend is difficult on the original owing to faded colors. This map is the earliest to refer to "irrigation ditch" and thus indicates that extensive channelization aimed at increasing yields through irrigation date from this time.

Сел. Преображенское

Archive Map 8. Regional settlement Eastern Ysyk-Kul

Orientation: Top edge of paper due east

Scale: Not on map approximately 1:10630000

Source: Kyrgyz State Archives in 2-119

Undated map circa 1923 (?). The interesting feature of this map is that it depicts the settlement of Chalba, hence it should date from after 1923 but refers to the city of Prezervalsk (name changed in 1889) as Karakol. Of interest is the fact that all settlements in the region are also referred to in Arabic script suggesting that the map was for the use of Kyrgyz nationals who may not at the time have had the ability to speak Russian. The map depicts major roads, trails, and some irrigation works.

Archive Map 9. Pokrovka to Marinsky 1910.

Original is Ink map

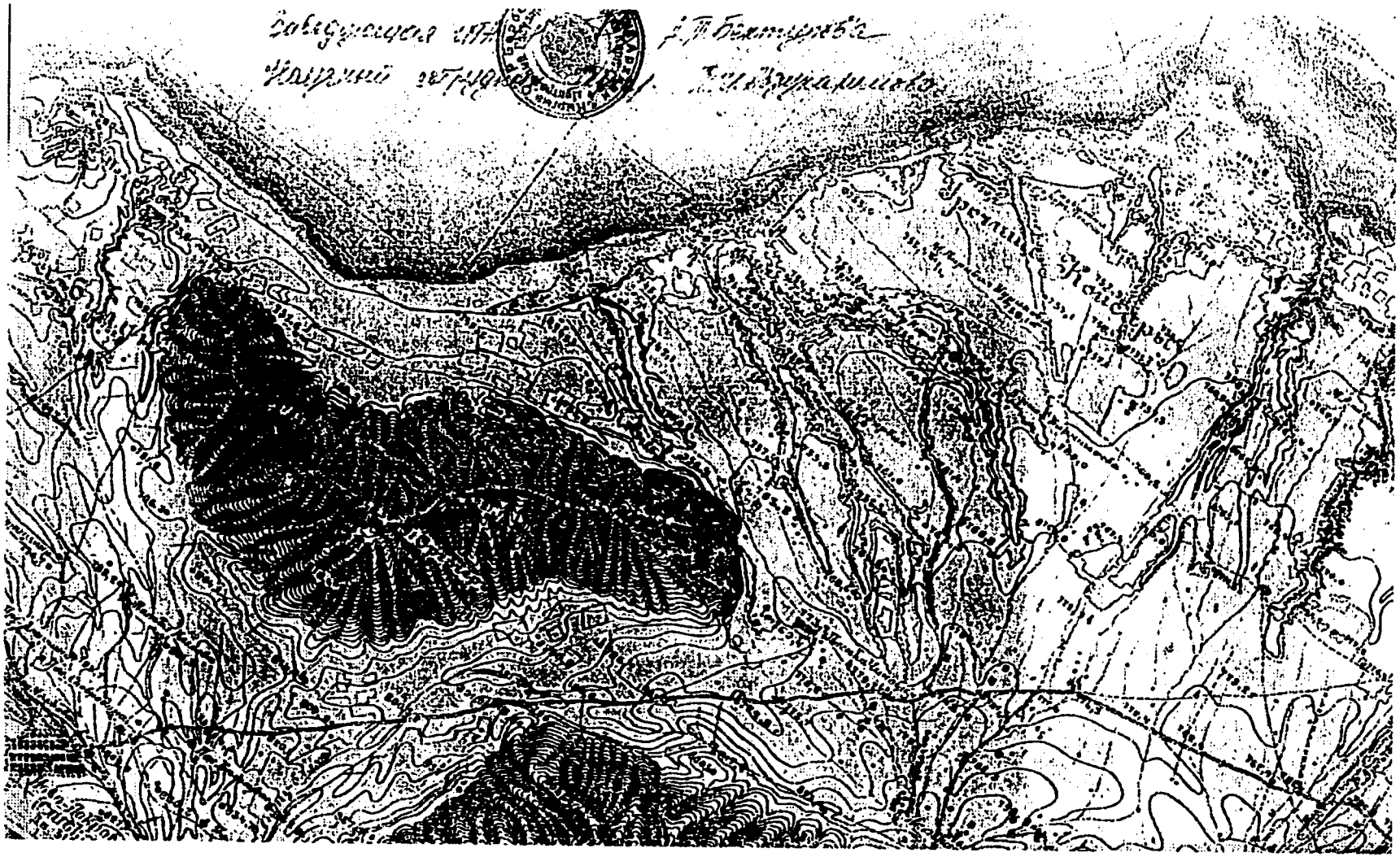
Orientation: Top of page is due west.

Scale: Approximately 1:50,000

Source: Kyrgyz State Archives

Notwithstanding the seeming extensive land division in 1868 in this area (Map 2), this map, showing the area between Pokrovka (Novo Pokrovka in bottom right of photograph) and the Dungan settlement of Marinsky (only partially visible in the top right) suggests that there had been limited land clearance and allocation in 1910. Moreover those fields that are evident are larger than the 1868 fields (generally over 2 hectares) and tend to be away from the erratic watercourses.

The settlements shown are the nineteenth century Russian or Ukrainian settlements but in the middle of the map, north of the road the settlement later identified as Monduz is detectable. The other settlements of the later Issyk-Kul Kolkhoz, Chalba, Ak Debe and An Osten are not yet in place.



Archive Map 10. Boz Uchuk 1899.

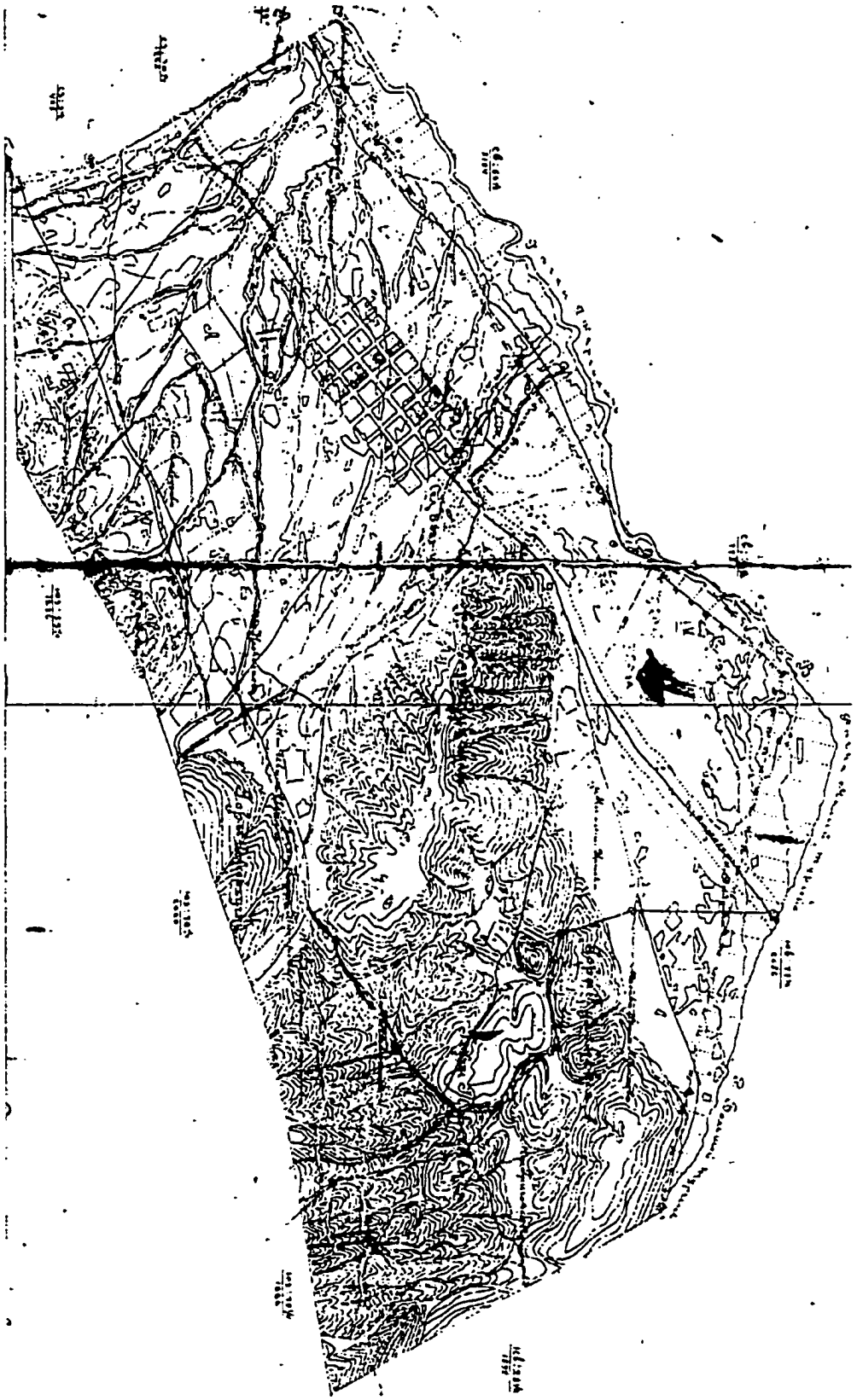
Original is Ink map

Orientation: Top of page is due west.

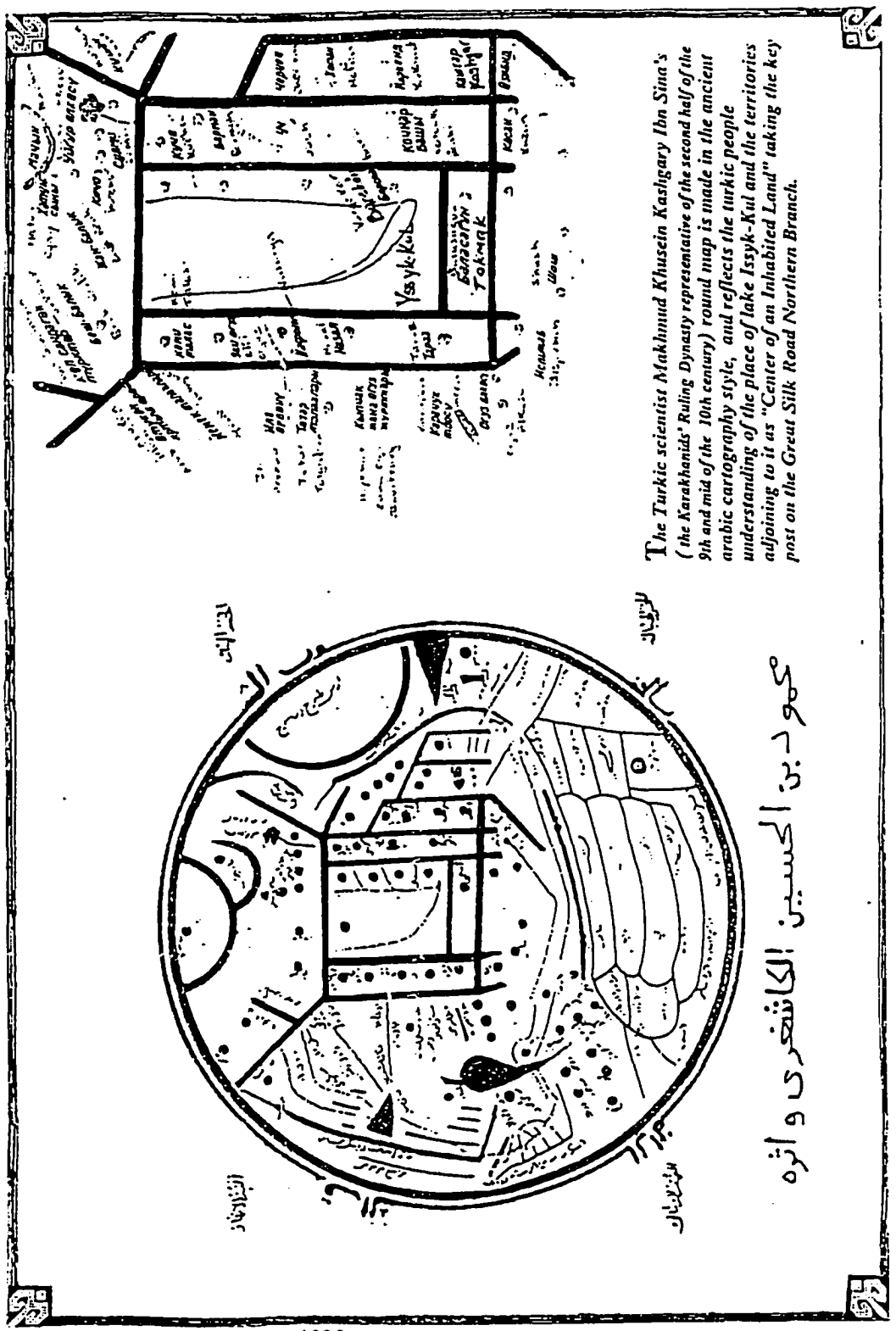
Scale: Approximately 1:50,000

Source: Kyrgyz State Archives 119-2-228

Located on the southern piedmont fringe of the Ala Tau, the plan shows a typical grid layout of the small Russian nucleated settlement. In this case it appears that the settlement is as yet uninhabited. Most interestingly the settlement is named Boz Uchuk, a Kyrgyz toponym, but is later renamed Novo-Konstantinovka and the name Boz Uchuk is given to a later Kyrgyz settlement some 300yards south. Thus it appears that some time after 1899 a group of settlers, possibly Ukrainian moved into the planned town, renamed it after Konstantine and upon Kyrgyz settlement some 10 years later the name Boz Uchuk was revived. The map also depicts the change in land tenure systems that would have been evident at this time. The rough fields cleared and enclosed from the steppe grasses are clearly shown. In addition the long lots at the edge of the Dzergalen River are clearly demarcated and would form the basis for the individual *nadely* of the new immigrants.



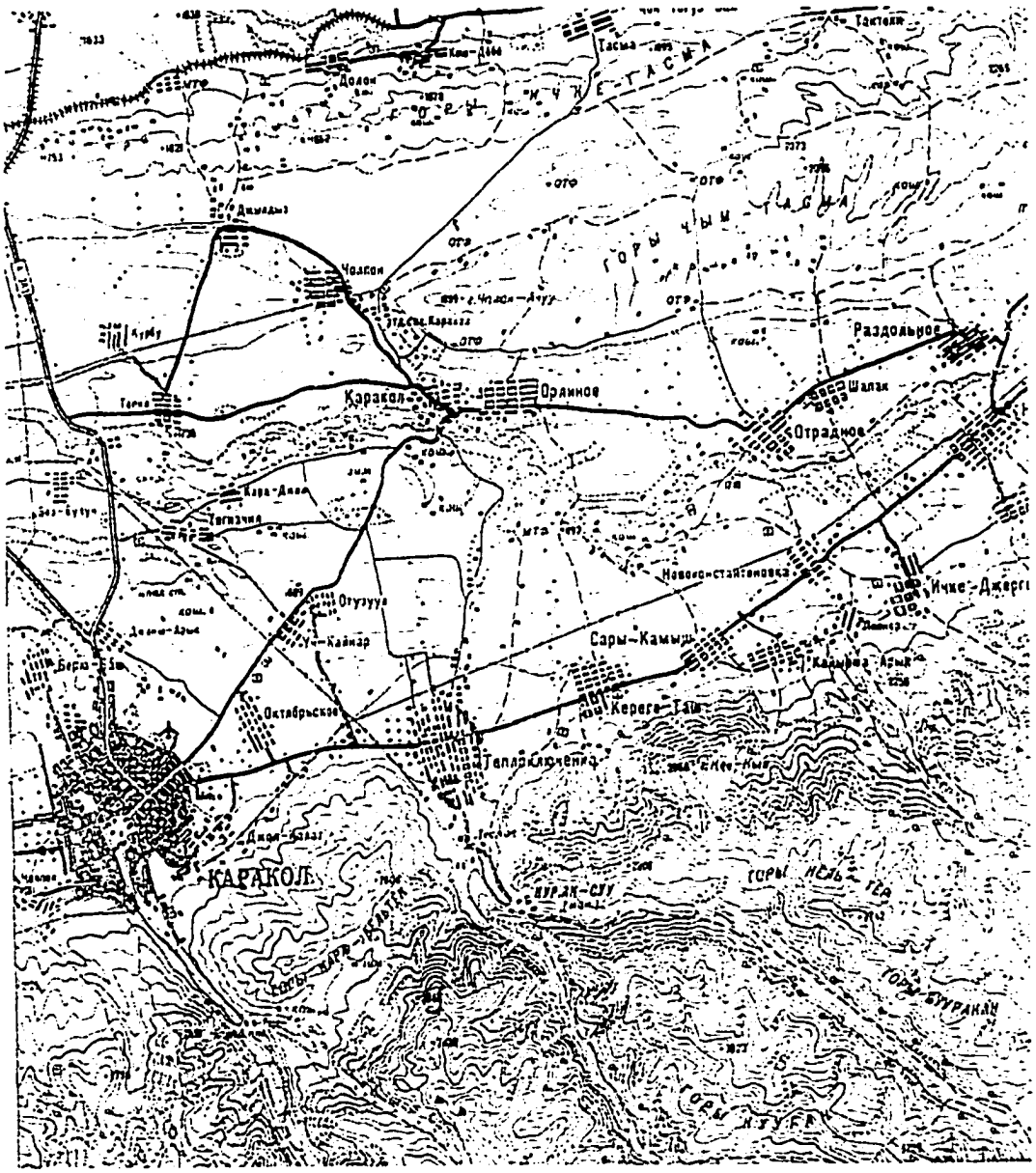
MAP 11. Mahmud al-Kashgari's Eleventh(?) Century map of the Ysyk-Kul Region



Source: Karakol Travel Agency. 1996

Note the Settlement of Barskan, the cartographers birthplace and the view of a circular world

Map 12. Portion of 1:200,000 sheet, Ysyk-Kul Oblast



Portion of the 1:200000 map of Ysyk-Kul oblast 1993, west of Karakol. It shows the settlement pattern whereby the Russian settlements (Opnhoe, Teplokluchenka, Hobokohctaehobka) are immediately adjacent to the Kyrgyz settlements (Karakol, Kepere Tash, Capbl Kambl).

(North top of page, Published by Institute of Geodesy and Mapping 1993).

Image One. Kyrgyz house built circa 1920

The above image is a livestock shed in the village of Telekmat. It was formerly the house of the resident family before it was replaced by their present dwelling on the same site. As a typical Kyrgyz house built in the twenties it indicates the un-fired mud brick construction and the dirt/thatch roof so typicalof Kyrgyz houses. The central door and the two rooms (sleeping and living) on either side of the entrance is visible

Image Two. Kyrgyz house and lot, Karakol.

The photograph was taken in May 1997. It shows a typical walled compound with two dwelling places enclosed within the compound. The larger dwelling ot the left is the house of the patriarch and the house opposite is the house of his son and daughter-in-law. The bringing of the daughter-in-law to the house of the son upon marriage is an acceptable Kyrgyz tradition and whereby the daughter-in-law is expected to help with all the chores and responsibilities of an extended family. The compound will also contain livestock, probably a goat, up to five sheep and a milk cow. Fodder is stored in the compound. All the visible trees are fruit trees, from which preserves are a large part of the Kyrgyz diet.

Image Three. Large House Village of Telekmat, Djeti Oguz Rayon.

This photograph is a house of a local dignitary in rural Ysyk-Kul. The house and outbuildings show a mixture of cultural influences. Firstly the house is unique for a rural residence insomuch as it is two-stories and has a basement. The method of construction in which wood has been used to anchor the first and second floors is a legacy of the Russian log house construction yet in the rear of the lot is the Kyrgyz construction of a mud brick house. Adjoining this house is a building of reeds of possibly Ukrainian influence. Finally the more ubiquitous oven is seen in the foreground.

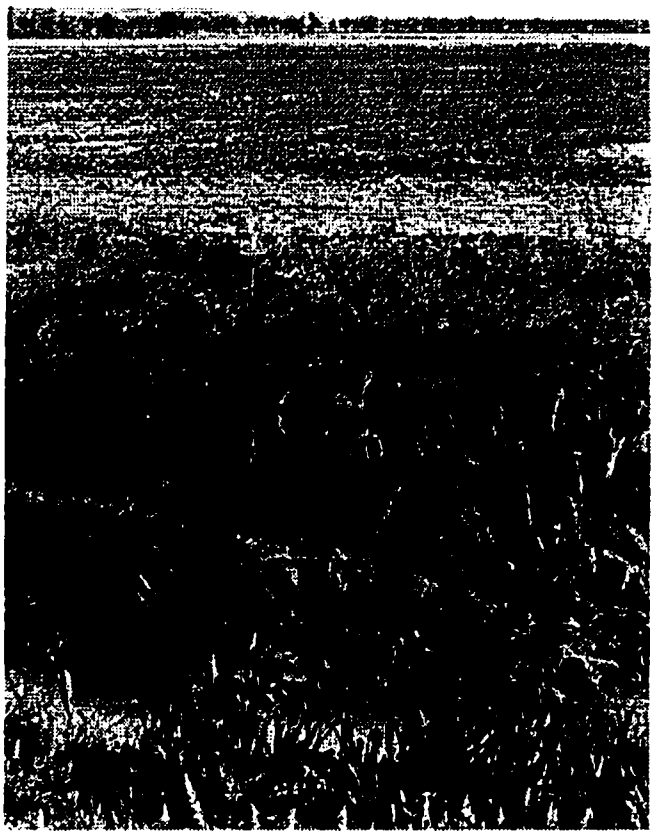
Image Four. Rural village landscape Village of Telekmat 1997.

A typical village landscape in Ysyk-Kul. The lot is the original surveyed lot, in this case around the turn of the century. Trees formerly demarcated the lots but these have been chopped down for firewood and only the stumps remain. The outdoor privy is located at the edge of the lot. It is a hole some one-meter deep. It is only two meters from a drainage ditch in which children play and three meters from one of the town's water pumps, which draws water from a shallow aquifer. The plot of land is cultivated intensively for vegetables and potatoes and feeds six household members. The outdoor oven, principally for making bread, means that the house is not hot in the summer months when bread is baked.

Image Five. Land Cultivation Village of Telekmat 1997

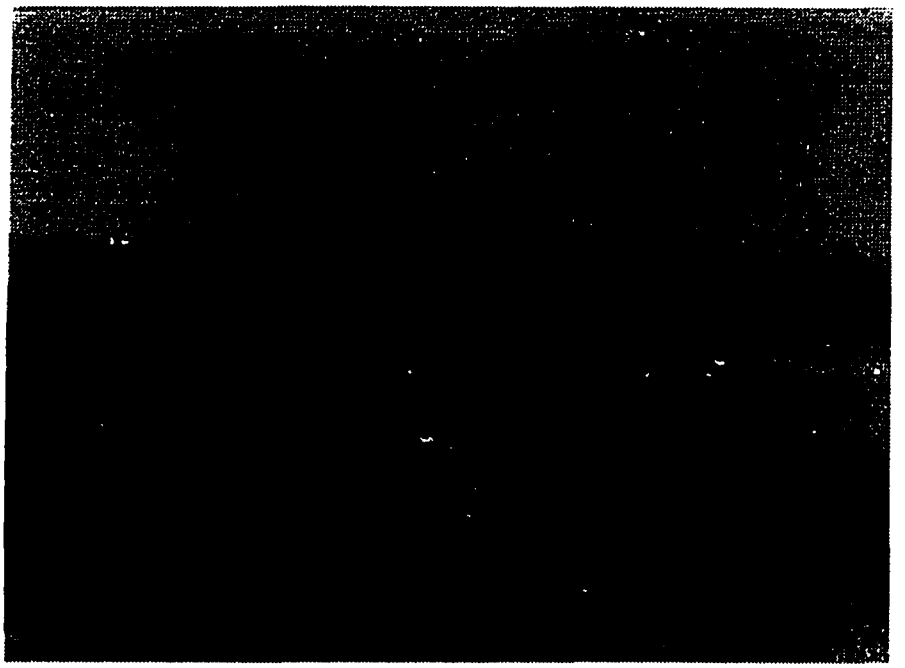
Human labor and hand tools for land cultivation are often replacing mechanization as a means of land cultivation. This is because of the lack of gasoline for the farm machinery and the inability of the mechanical units to be adjusted to the cultivation of individual lots, usually very narrow and long. This farmer is 76 years of age. He is preparing the land by hoeing the channels for his lot prior to planting spring wheat. This is his poorest land; he has three other plots scattered around the village in lower, more productive locations.

Image Six. Rural landscapes, West of Jyldyz, Ak Sun Rayon 1997.



The photograph was taken April 1997. The view, looking south, shows a small irrigation ditch in the foreground, but which when water is channeled into the trench becomes the conduit for flood irrigation of the field. In the background the long line of trees demarcates both the irrigation channel and the edge of the landscape fields. These boundaries on land redistribution remain fixed features. This field grew a wheat crop the previous year.

Image Seven. Long Lots West of Village of Jyldyz, Ak Suu Rayon

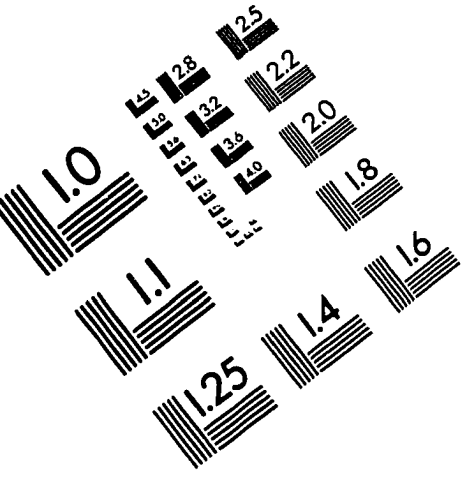


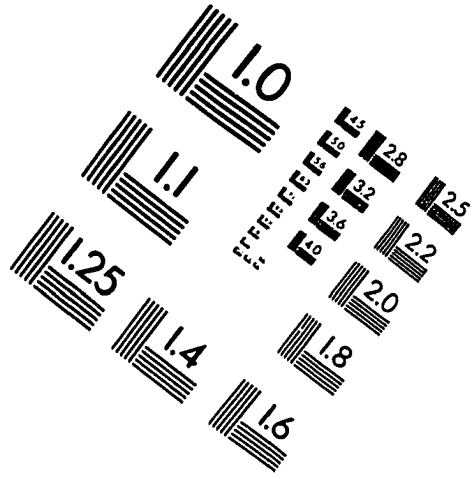
These long lots were photographed in April 1997 prior to the spring planting, though some were already planted in winter wheat. The village of Jyldyz is a small community on a formerly very large Sovkhoz (Sovkhoz Karakol). The smaller population and the larger land base permits the lots to be considerably longer than those found elsewhere (over 600 meters) in Ysyk-Kul but in order to allow equal access to the water arterial are an average width of only ten meters.

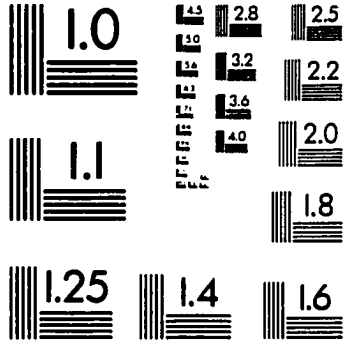
Image Eight. Administrators house Karakol.

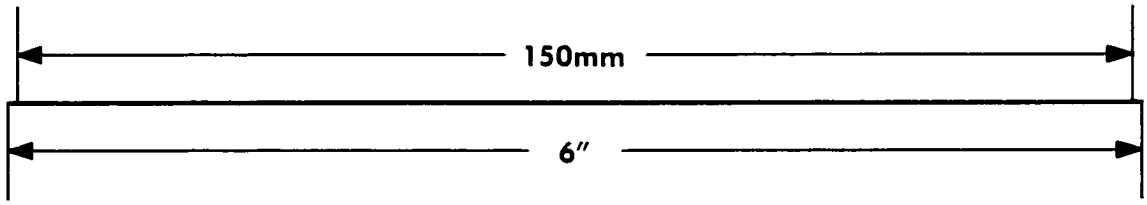
A Russian merchant's house in Karakol, built 1913. The house has impressive and beautiful ornamental facia. Now abandoned, the house, and others like them are falling into a state of disrepair and ruination.

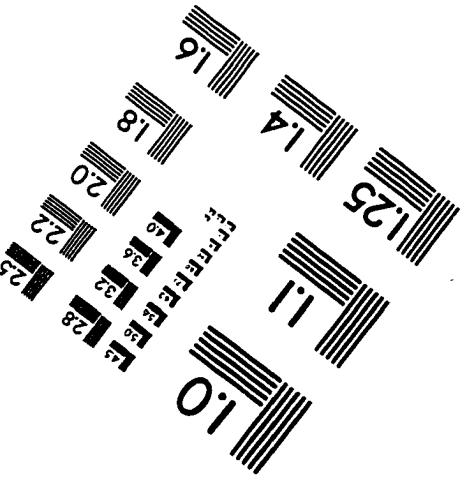
IMAGE EVALUATION
TEST TARGET (QA-3)

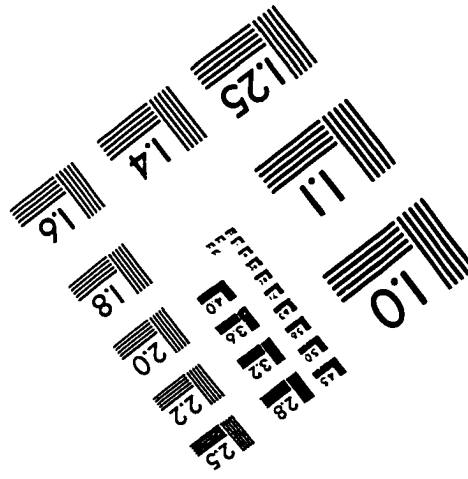












APPLIED IMAGE, Inc
1653 East Main Street
Rochester, NY 14609 USA
Phone: 716/482-0300
Fax: 716/288-5989